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# *Table of Contents*

1. *Somatopsychology of Physical Disability* — LEE MEYERSON . . . . . . . . . . . . . 1

Understanding the Behavior of the Physically Disabled: The Cultural Relativity of Disability. Understanding the Behavior of the Physically Handicapped: Science and Theory in Somatopsychology. A Way of Thinking in Somatopsychology. Understanding the Behavior of the Physically Handicapped: Some Concepts for Somatopsychology.

2. *Psychological Assessment of Exceptional Children and Youth* — T. ERNEST NEWLAND . . . . . . 61

Assumptions Underlying Psychological Testing. Measurement Approaches and Problems. The Assessment Process. Summary.

3. *A Psychology of Impaired Hearing* — LEE MEYERSON . . . . . . . . . . . . . . 120

The Problem of Relevant Variables. The Problem of Empirical Evidence. The Meaning of Empirical Evidence. The Problem of Adjustment. The Problem of Counselling. Counselling Adventitiously Impaired Persons.

4. *The Nature of Defective Speech* — JON EISENSON . . 184

Types of Speech Defects. Incidents of Speech Defects. Causes of Defective Speech. Intelligence and Speech Defects. Relationship of Speech Defects to Other Defects. Personality Aspects and Adjustment Problems. Delayed Speech. Stutterers. Adolescent and Young Adult Stutterers. Summary.

# Psychology of Exceptional Children and Youth

INSTITUTE OF EDUCATION FOR WOMEN
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# *Exceptional Children and Youth*

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PRENTICE-HALL, INC.

PRENTICE-HALL PSYCHOLOGY SERIES
*Arthur T. Jersild, Editor*

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LIBRARY OF CONGRESS
CATALOG CARD NO.: 55-10577

*First printing* .............................. *August, 1955*
*Second printing* .......................... *March, 1956*
*Third printing* ............................ *August, 1956*

PRINTED IN THE UNITED STATES OF AMERICA
73390

# *Preface*

Since 1920, the combined effect of several important influences has brought the exceptional child and youth to the attention of professional people in a very dramatic way. World Wars I and II, with their universal military conscription, subjected almost the entire male population of the United States to complete physical, psychological, and psychiatric examinations, and directed public attention to the large percentages of men who, due to physical disability, mental retardation, illiteracy, or psychiatric disorders, were rejected as unfit to assume this major responsibility of citizenship. Similarly, the results of the two wars, together with the conflict in Korea, have created widespread interest and concern about the general problems of rehabilitation.

Medicine and allied sciences have progressed markedly since the twenties. Psychological inquiries and research have added much to our understanding of the role of handicaps in the lives of children, their parents, and society in general. Medical inquiries have contributed greatly to the control of epilepsy, to an understanding of cardiac disturbances, and to the basic information regarding congenital disorders. True congenital deformities, retrolental fibroplasia, cerebral injuries, and many other problems still pose unanswered questions to the professions. Nevertheless, many advances have been observed in psychological and medical knowledge.

As a result of these factors, most parents of exceptional children now look upon a handicap from a much more mature point of view and consider their children socially acceptable. Parent groups, locally and nationally, have organized to bring these children to the attention of the community.

Long before the pressure of parent groups was felt, many colleges, universities, and social agencies organized professional programs in behalf of exceptional children, youth, and adults. The International Council for Exceptional Children, the National Society for Crippled Children and Adults, Inc., together with its many state affiliates, the National Foundation for Infantile Paralysis, the Office of Education in the United States Department of Health, Education, and Welfare, the American Foundation for the Blind, the National Society for the Prevention of Blindness, the National Epilepsy League, and many others have been concerned for years with problems relating to the professional preparation of personnel and with the increase of services to handicapped individuals. As a result, thousands of young people throughout the world are devoting themselves to careers that relate to the handicapped.

Although much remains to be investigated concerning the psychological growth and development of exceptional children and youth, psychological understanding has grown sufficiently exact to warrant a single publication dealing with this problem. This symposium, prepared by psychologists, is devoted solely to the psychological considerations of the influence of physical deviation upon the normative growth and development of children and young people. The term "exceptional child" means one who, by reason of a physical or intellectual deviation, is considered unique among children. Thus, chapters that deal with the psychology of the intellectually superior child, as well as with the intellectually inferior child, are included in the book. Chapters that deal with all the major groups of physically disabled children are also included.

In general, the authors approach their respective areas by evaluating psychological theory and research from the point of view of the impact of physical disability or intellectual deviation upon the psychosocial adjustment of behavior. The authors are, in this instance, indebted to Dr. Lee Meyerson for his chapter on the somatopsychology of physical disability, which serves as a backdrop for the later discussions. On the whole, each author has culled from the literature those theoretical statements and psychological research investigations that help in better understanding the implications of deviation for the child. In this connection, chapters dealing with particular deviations have been prepared by Drs. Lee Meyerson, Ruth Strang, Seymour Sarason, Daniel Broida, Jon Eisenson, Joseph

Newman, Berthold Lowenfeld, and the editor. The chapter prepared by Dr. T. Ernest Newland is of particular importance in understanding the psychological problems of the exceptional child and youth. His stimulating and provocative comments regarding psychological assessment point to numerous aspects of psychological research for further investigation. Similarly, the excellent statement by Dr. Emory Cowen pertaining to psychological counseling and therapeutic treatment of exceptional children, blanketed with knowledge of nondisabled children and youth, reflects the philosophy of all the authors: *The exceptional child must first be considered as a child and in the light of normative growth and development.* At the same time, the chapter brings together the important contributions of psychotherapeutic treatment of these children and their problems.

WILLIAM M. CRUICKSHANK

INSTITUTE OF EDUCATION FOR WOMEN
Dept. of Extension
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CALCUTTA-27

5. *Psychological Problems of Children with Impaired Vision* — BERTHOLD LOWENFELD . . . . . . . 214

The Blind. Cognitive Functions. Mobility. Personality and Social Factors. Conclusion. The Partially Seeing Child.

6. *Psychological Considerations with Crippled Children* — WILLIAM M. CRUICKSHANK . . . . . . . . 284

Theories of the Impact of Disability on Adjustment. Emotional and Social Adjustment. Attitudes of the Handicapped Child Toward the Culture. Attitudes Toward the Handicapped Child. Intelligence. Perception in Children with Cerebral Palsy.

7. *Psychosocial Aspects of Epilepsy in Children and Youth* — DANIEL C. BROIDA . . . . . . . . . 345

Introduction. Definition. The Types of Epilepsies. Extent of the Problem. Etiology. Diagnosis. Other Factors of Diagnostic Significance in Children. Psychological Characteristics of the Epileptic Child. Personality and Emotional Problems of the Epileptic Child. Treatment of the Epileptic Child.

8. *Psychological Problems of Children and Youth with Chronic Medical Disorders* — JOSEPH NEWMAN . . . . . . . . . . . 391

Psychological Implications of Chronic Disease. Psychological Implications of Tuberculosis. Psychological Implications of Heart Disease. Psychological Implications of Endocrine Disorders. Diabetes. Psychological Implications of Allergic Disorders. Conclusions and Implications for Further Study.

9. *Mentally Retarded and Mentally Defective Children: Major Psychosocial Problems* — SEYMOUR B. SARASON . . . . . . . . . . 438

The Primary Problem. The Adjustment Problems of the Mentally Retarded. The Adjustment Problems of the Mentally Defective. The Parent Problem. The Parent Movement. Some Final Comments.

10. *Psychology of Gifted Children and Youth* — RUTH STRANG . . . . . . . . . . . . . . . . 475

Who Are the Gifted? Does Giftedness Occur Singly? How Can Gifted Children Be Identified? Were They Born That Way? How Does Environment Help or Hinder? Why Should Different Levels of Intelligence Be Recognized? What Are the Characteristics of Gifted Children? How Do Gifted Children Learn? What Motivates Gifted Children? What Are Other Aspects of the Dynamics of Their Development? What Happens to Gifted Children? What Are Some Implications of the Psychology of Gifted Children?

11. *Psychotherapy and Play Techniques with the Exceptional Child and Youth* — EMORY L. COWEN . . . 520

The Nature of Psychotherapy. Play Techniques and Psychotherapy with Children. Applications to Exceptional Children. Overview, Discussion, and Research Suggestions.

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# 1.

# *Somatopsychology of Physical Disability*

At one time many people believed that continuing progress in the medical sciences would lead eventually to the prevention or cure of all the disorders we classify as physical disabilities. Today it is clear that we have made great strides in preventing some disabilities and in reducing the severity of others. Blindness as a consequence of untreated syphilis in the mother is practically nonexistent in the United States. Severe crippling following poliomyelitis, which was once common, is now rare. The deformities resulting from osteomyelitis are now prevented by the miracle of antibiotic drugs.

The other side of the picture, however, is not as hopeful. It is becoming increasingly evident that modern medicine is saving lives at the cost of permanent physical disabilities. Premature infants, children and adults ill with acute infections or the injuries of accidents, and the enfeebled aged, all of whom once would have died, now live; but they live with gross alterations in physique and with severe impairments in physiological functioning.

There is presently little hope that illness and disability will disappear. Instead the number, and perhaps the rate, of physically disabled persons is increasing so that today there are more people with physical disabilities in the world than ever before.

Are these millions of people with physical disabilities different kinds of people from others? Are they treated in ways that are unique to those with imperfect bodies? Have they been exposed to life situations that exert a unique effect on behavior? Do we require a special psychology or unique psychological laws to understand them?

Large numbers of professional men all over the world are devoting their lives to the practice of rehabilitation. They make great efforts to assist the disabled person to return to normal society and normal living. Sometimes their efforts result in great success. More often success is limited by variables that are as yet imperfectly understood.

It is clearly important to study the problems that arise from the possession of an atypical physique and attempt to find answers. A direct attack upon problems that are not well understood, however, is not always the most fruitful. Here we shall begin indirectly by considering the significance that may be assigned to physique generally without special reference to the physical variations we call physical disability.

Somatopsychology (*soma:* body; *psyche:* mind, soul) is the study of some of the relationships that bind physique and behavior. All of us in everyday life tend to make judgments of people in terms of their physiques and also to evaluate physique in terms of behavior. We may say, "She's a redhead; I'll bet she has a temper," or "He might be a handsome fellow if he didn't scowl all the time." On a more sophisticated level we may say, "She's shy and withdrawn because she's ashamed of being so fat," or "She's fat because she's shy and withdrawn and eating is her only pleasure."

It is not easy to disentangle the threads of cause-reaction-effect, and moreover, there always seem to be many exceptions. Some fat people are jolly and some perfectly proportioned people are shy and withdrawn. It is a matter of common observation that the same kinds of behavior may be shown by people who have widely differing physiques, and among individuals who have the same kind of physique can be found widely differing behavior.

It is the function of somatopsychology as a science to try to make sense out of this confusing array of data. Are there any invariable relationships between physique and behavior so that a science of somatopsychology can be developed or must we say that each person is a law unto himself?

There are several ways of attacking this problem, and for each way there is some confirming evidence.

1. *There is no relationship between physique and behavior.* It is evident that normal variations in specific aspects of physique such as the length of fingers, toes, lips, or tongue are not critical factors in behavior. Similarly, it is obvious from impressionistic evaluation of the whole physique that individuals who engage in similar behavior may come in all shapes and sizes. Groups of writers or lawyers or psychologists or realtors are not noted for their physical similarity.

It is equally evident, however, that girls with generous chest measurements seem to behave in ways that are different from girls who are less well endowed. Boys with well developed muscles engage in activities that are rare for weaker youths. Athletes as a group do not look like bankers or bookkeepers. Men, as identified by physique, behave differently than women.

In addition to common observation, we must also note that there is a large and increasing research literature whose findings lead in a consistent direction. Most of the studies that have been made show a positive correlation between certain aspects of physique and certain kinds of behavior. For example, children who are physically larger in height and weight tend to show leadership, popularity, social success, and good adjustment more frequently than smaller children.[2] The correlations obtained are usually low, but they are positive in relating "good" physique to "good" behavior; and some of the correlations are statistically significant.

How can such data be explained? It must be emphasized that correlation is not explanation. We can be certain only that there are some relationships between physique and some aspects of behavior, but we are still faced with the problem of determining whether these relationships are meaningful. In terms of what concepts can the obtained relationships be explained?

Some of the research findings seem easy to understand. No one in our culture is likely to be surprised that most men tend to marry women who are slightly shorter than they are. This may be a matter of social expectancy. In our culture men are supposed to be taller than their wives. There is no necessary relationship, however. Many men are shorter than their wives. It is also unsurprising that behavioral skill in games is associated with physical strength. To the degree that strength is required for skill, this would appear to be a comprehensible, direct relationship.

It is more difficult, however, to understand Gowin's finding that railroad presidents were significantly taller than railroad station agents, university presidents were taller than small-college presidents, and bishops were taller than smalltown preachers.[3] Why do the two characteristics seem to go together with greater than chance expectancy? Similarly, it is not clear why Blair, in a survey of 270,000 men who owned life insurance, found an almost perfect relationship between a person's height and the amount of his insurance policy.[4] The average amount per policy for men who were six feet, four inches tall was $6,180 and the amount consistently decreased with each decrease of one inch in height until the average amount per policy for men who were five feet tall was only $2,979. Should we say that tall men are more able and therefore earn more money than shorter men; that there are special social reasons why tall men need more insurance than others; or that the increased ability to buy insurance and tallness are both functions of a superior nutritional and social environment?

2. *Physique determines behavior.* One of the oldest ideas in the history of psychology is based on the observation that some individuals are relatively taller than they are wide; some are relatively wider than they are tall; some are relatively well proportioned in both directions; and many cannot be exactly classified.

Since the time of Hippocrates, 2,500 years ago, thoughtful and observant men have believed that there is a systematic and intrinsic connection between physique or body-type and personality. The connection has been variously conceived to be genetic or biochemical or physiological so that once the body-type or body was established, predictable behavior necessarily followed.

It is conceivable that the same genes or biochemical conditions that influence the development of body-type also directly influence personality and behavior, but the evidence lends little support to this idea. Correlations, obtained from normal populations, between physical type and psychological type almost invariably have been so low as to be useless for prediction.[5,6,7,8,9,10,11]

Sheldon and associates[12,13,14,15] have developed the most promising modern constitutional typology. They have described three components of structural variation which they claim are independent of nutrition and weight, and three basic components of temperament. In this scheme, a subject is rated on a scale from 1 to 7 for each component of physique and of temperament. Thus, the extreme endomorph (fat and flabby physique) would have a somatotype of 7-1-1; an extreme mesomorph (strong and muscular physique) would have a somatotype of 1-7-1; and an extreme ectomorph (frail and delicate physique) would have a somatotype of 1-1-7. A person who had an average degree of each component would be rated 4-4-4. Similar ratings are made for each of the three primary components of temperament, namely, viscerotonia (general relaxation, love of comfort, food and people); somatotonia (muscular activity and bodily assertiveness); and cerebrotonia (restraint and inhibition). The creators of this classification reported correlations of the order of +.8 between endomorphic physique and viscerotonic temperament; mesomorphic physique and somatotonic temperament; and ectomorphic physique and cerebrotonic temperament.[16]

These findings, however, have been criticized on the grounds that the criteria for the temperament ratings were often expressed in physical terms. For example, the trait of physical courage for combat was defined as a "confident dependence upon the sturdiness, skill and muscular strength of the body." The temperamental characteristic of restraint in posture and movement was defined as meaning that the body as a whole is carried stiffly. If temperament ratings are contaminated by body characteristics from the very beginning, it is not surprising that high correlations between physique and temperament were found.

Nevertheless this theory is a great improvement over earlier typologies, for it recognizes that pure or extreme types of physique or temperament rarely exist and makes provision for the classification of the great mass of men whose physiques and temperaments do not fit exactly into just one of three classifications.

The theory of somatotypes may eventually add to our knowledge of intrinsic relationships between physique and temperament. A somatotyping study of congenitally handicapped persons would be of great interest. At present, however, the theory offers no aid in understanding the behavior of the physically handicapped.

Physique may also directly determine behavior in ways that do not require assumptions about body-type. Men are biological organisms and as such they are amenable to biological forces, especially deprivations and disease. Lack of necessary endocrine products, for example, may affect both physical and psychological development, although there is little evidence that normal variation in endocrine secretion is related to personality.[17]

Sexual maturity and interest in the opposite sex ordinarily develop together. A person may be sexually mature, however, without being interested in the opposite sex, and a sexually immature child may be highly interested in sexual contact with adults[18]. The presence of the appropriate physique may not necessarily require a particular kind of behavior and the absence of appropriate physique may not prohibit behavior.

It is predictable that a totally blind child will not respond to visual stimuli nor a totally deaf child to auditory stimuli. It must be remembered, however, that these highly specific limitations on behavior may be resolved in countless ways. Children with the same physical limitation may present markedly diverse personality pictures. It is not possible to predict with accuracy the molar psychological behavior of a child solely from knowledge of the nature and degree of his disability.

Men are also social organisms. In our culture it is predictable that children with male physiques will play with mechanical toys while children with female physiques will play with dolls. Adults with male physiques will be the breadwinners who work outside the home while adults with female physiques will concern themselves with gentler pursuits inside the home. Again, however, it must be noted that exceptions exist. There is no necessary relationship between the physique and the behavior. In some cultures in fact, women do the sort of work we consider appropriate for men, and men do the work we consider appropriate for women.[19]

3. *Behavior determines physique.* White individuals who uncover their bodies to the sun develop red or brown skins. Individuals who practice the sport of weight lifting develop large biceps. The academic class of a co-ed at Cornell University in Ithaca, New York, where hills are frequent and steep, can be predicted with considerable accuracy from the relative development of the muscles of the calf.

In recent years great emphasis has been placed upon functional or psychosomatic disabilities. It is now well known that how a person thinks and feels may affect his physique. A soldier who runs away from the cries of his wounded buddies may develop "psychogenic" deafness. High-powered executives who function under great pressure for long periods of time are more likely to develop peptic ulcers than individuals who lead calmer lives. Negroes in Africa and Chinese in China rarely develop the heart condition known as essential hypertension, but Negroes and Chinese who live and behave like Americans are as susceptible as other Americans. Similarly, American-born Japanese grow taller and develop a different type of chest structure than their countrymen who grow up in Japan, although there is no reason to believe that the genetic structures of the two groups are different.

A similar process is not unknown among Americans. Theodore Roosevelt was frail and delicate as a youngster. The change in his physique with exercise was not paralleled by similar changes in other frail youngsters who were unable to live in the open and did not develop his interest in "roughing it."

It is evident that all human functions are psychosomatic. Nothing is ever determined simply by heredity or simply by environment.

4. *Behavior and physique may be simultaneously determined by a third variable.* The untreated congenital hypothyroid child simultaneously develops cretin physique and behavioral sluggishness. Both deafness and mental deficiency in a child may be residuals of an attack of meningitis. Development of secondary sexual characteristics and becoming interested in the opposite sex may result from the injection of sex hormones. Some of these relationships have a *must* characteristic so that direct and accurate prediction from physique to behavior is possible; e.g., no cases have been reported of untreated congenital hypothyroid children who did not simultaneously manifest cretin physique and behavioral sluggishness. Other relationships, however, like those in the previous classifications refer to statistical probabilities. Meningitis may or may not cause deafness, mental deficiency or both.

5. *Behavior is a function of a person interacting with his environment, $B = f(PE)$*[20]. It is now obvious that this is the only formulation that will adequately account for all of the evidence. Behavior is never the result of the person or the environment alone. It is not certain, however, that knowledge of this formula greatly increases our understanding or our ability to predict and control behavior in the individual case. To study all aspects of a person, all aspects of the environment and all aspects of the interaction between the two is clearly an impossible task. We may limit the field to more

manageable dimensions by concentrating not on an understanding of all behavior but rather the more modest aim of understanding what behavior occurs because a person has a particular physique. Even more specifically, we wish to find some way of ordering and understanding the behavior of individuals whose physique is "exceptional" in a negative way—i.e., the behavior of individuals whom we call physically disabled.

In the past, one unfortunate effect of formulating a psychological problem in terms of physical characteristics has been to imply that a disability *per se* is directly responsible for behavior. It is not uncommon to read that the deaf are suspicious; the blind are withdrawn; and the crippled are maladjusted. It is known, however, that some of our deaf, blind, and crippled children are very well adjusted individuals whose mental health is superior to that achieved by the average physically "normal" child. For such cases the tendency has been to fall back on the bromide that "it all depends upon the person." Since all degrees and kinds of adjustment may be found in the physically disabled, it has been claimed that adjustment depends upon the individual. It is the individual child who with "help" must "accept" or "compensate" or "make up for" so that he may "act as normal as possible" and "be treated as normal," "in spite of" his disability. These formulations place an impossible task and needless strains upon disabled children. As we shall see, except for certain specific behavioral limitations that are directly tied to physique, placing the source of behavior either in the disability itself or in the person is neither helpful nor true.

## UNDERSTANDING THE BEHAVIOR OF THE PHYSICALLY DISABLED: THE CULTURAL RELATIVITY OF DISABILITY

The history of science shows that progress in understanding phenomena has often been impeded by the acceptance of "obvious" assumptions that are not true. It may be of value, therefore, to examine certain assumptions in somatopsychology that appear to be self-evident. For example, what is a physical disability? What is a physical handicap? For many years, the two terms were frequently used interchangeably, for it seemed clear that if a person had a disability, he was handicapped for that ability and the handicap would "spread" to other behavior also. Undoubtedly there is some truth in this view. A crippled child is limited not only in physical ability. He *may* also be limited in the kinds of play experiences that are open to him. His parents, other adults, and children *may* treat him differently than if he were not crippled, and he, himself, *may* come to feel that he is not only different, but also a less worthy person than others. It will be observed that different verbs have been used in this description. The child *is* physically limited but the effects of the limitation are restricted to a conditional *may*. Handicaps may or may not follow from a disability. In recent years it has become common to make this sort of distinction between the two terms. A disability is seen as an impairment having an objective or medical aspect,[21] while a handicap is seen as an impairment in a particular kind of social and psychological behavior. Although behavioral data may be equally as "objective" as physique, this is a useful distinction. It makes explicit the common observation that children with identical physical impairments may behave in radically different ways and children who behave in essentially similar ways may have widely differing physiques. It is not certain, however, that such a distinction is of maximum utility in understanding the behavioral data may be equally as "objective" as physique, this is a value to postulate that neither disability nor handicap is objective in the sense that they are simply descriptions. Both are *judgments* which tend to conceal the implicit values upon which they are based. In strictly objective terms it can be said only that variations in physique exist. Which variations will be considered disabilities, impairments, or handicaps is strictly relative to the expectations of the culture in which the person lives, the tasks that are required of him, and the meaning the person himself and others may assign to the variation.

## *Variations in Physique Leading to Limitation in Ability*

Consider a female adolescent whose feet from heel to toe measure just four inches and appear to be "deformed." On observation it is noted that the girl walks mostly on her toes with a shuffling movement, that she cannot walk with the free stride of the typical

American girl, and she cannot run. Does this person have a disability? If she were an American girl living in the United States, obviously it would be difficult or impossible for her to engage in many of the activities that we consider appropriate and desirable for teenage girls. Suppose, however, that this adolescent lived in China a hundred years ago when it was customary to bind the feet of females. In terms of the culture in which she lived, was she disabled? Who should be the judge? There is no question about the variation in physique. The feet of this adolescent and the feet of an American contemporary would differ. An American might say, "She's crippled. Why, she could never play softball like a real American girl." A Chinese might reply, "Barbarians! It is not appropriate for a woman to play softball. This girl has delightfully small feet that her husband will cherish, and she walks with the light and mincing step that is appropriate for a woman. Your American girls with their big gross feet walk like men. We would not allow it in China."

Obviously, it cannot be said that the Chinese girl in the Chinese culture of that time had a disability; on the contrary the variation in the structure of her foot gave her a positive ability – the ability to walk in the way a woman "ought" to walk. An American girl in China would lack this ability. She would be "different." It would be seen by all that her feet were large and "repulsive." She would be handicapped in behaving like a woman, and if social disapproval were great enough, she might very well develop the maladjusted behavior we commonly refer to as psychological handicap.

Another example from Chinese culture is instructive. It is said that when a powerful man approached the peak of his power, he closed his hands into fists and allowed his fingernails to grow through the palms to the other side. Physically, such a person was in a position similar to that of a bilateral hand amputee, but we cannot say that he was handicapped or disabled. He was in a highly desirable and envied position. He had the ability to live without caring for himself or lowering himself to any kind of labor. In effect such a person was saying to the world, "You see how wealthy and powerful I am? See how fearless I am of the future? See what a wonderful and privileged life I lead? There is nothing I have to do for myself. In all things I have servants at my beck and call."

In our culture, where we value purposeful activity, such a "deformity" would be a horrible disability. Among the elite of China, who value the contemplative life, it was not horrible. It was the height of social distinction. No doubt such behavior sounds very queer and "abnormal" to us but only because we are accustomed to different forms of social honor. The Chinese might very well point to the "deformities" we have imposed upon physique during the time when the whalebone-corseted wasp-waist and the hourglass figure were considered appropriate for women. The fainting spells and many of the varied "female troubles" common in Queen Victoria's day undoubtedly were traceable to these imposed variations in physique. Similarly the binding of the breasts, required for the boyish figure of the 1920 "flapper," which led to the breakdown of breast tissue and disturbances in lactating ability, probably was not unrelated to the increasing popularity of bottle-feeding infants which occurred at the same time. The Chinese might also point to the frequency with which our men, in their unceasing struggle for wealth, success, and power, drive themselves into physical disability and early death from heart disease. Our "jokes" about one-ulcer or two-ulcer executives in the advertising business, as indicators of productivity and merit, would not seem funny to the Chinese.

Other examples of the cultural relativity of disability are easy to find. In our culture women who have epileptic seizures are considered to have a disability. Among the Shasta Indians of California, however, similar seizures are a rare and valued ability which lead a person to positions of importance, power, and honor. The Ubangi, whom many of us have seen in the circus sideshow, place wooden plugs in their lips to stretch them, so that at adulthood the lips extend five or six inches in front of the face. It is obvious that functions such as nutrition, speech, and the uncommon emotional expression we call kissing must be affected.

Are these people "normal"? Are they "disabled"? One must remember that the Ubangi do not kiss; their lips are not an impediment to their own speech or to their nutrition. They may be considered to have a disability only if kissing were as valued in Africa as it is in the United States, only if they were required to speak English, and only if it were necessary for them to eat American foods. Obviously, however, an American among the Ubangi would have a disability by reason of his shallow lips.

Physical variation among the people of the earth seems to be the rule rather than the exception. There are people who "complete" the body by elongating the neck or molding the skull, by knocking out front teeth, blackening them, or filing them to points. Among some primitive people, it is customary to stretch the labia of the female genitals until they reach the knees. Other groups insert objects into the prepuce of the male genitals. All are examples of variation in physique that, in our culture, would lead us to the judgment of "disability," although they do not do so in the cultures in which they are found.

In addition to imposed variations in physique, it is easy to see that normal variations in height or in musculature may also lead directly to limitations in ability and indirectly to a judgment of "disability." The Pigmy lacks the ability to function efficiently in a society built for tall people. The "normal" white man is relatively lacking in a similar way if he is required to hunt animals by crawling through low grass without being seen. The clothes model of our culture, the highly valued, frail, female with the pipestem shape, would be devalued and handicapped in Okinawa where it is customary for women to be able to row a boat, hoe a plot of ground, and haul in large fishing nets. Where big husky women are required and valued, our beautiful model, by reason of her physique, would lack important physical abilities.

In other words, it cannot be said that a person has a disability without specifying the situation in which he is expected to behave. Disability is not an objective *thing in a person,* but a social value judgment. A society makes a disability by creating a culture in which certain tools are required for behavior. Variations in physique by themselves have little psychological meaning outside of the frame of reference in which they are evaluated.

These examples may seem somewhat "unreal" analogies since there is little communication between primitive cultures and our own and we are convinced of our own superiority. Nevertheless they may help to clarify and make explicit the relativity character of "normal" physique and the judgmental character of the term "disability." Moreover, it can be shown that such analogies are not simply speculations but are similar to culture contacts that have occurred on a large scale. For example, in comparison with the American Indian, who was able to hear the faintest sound of animals in the wilderness, and to see the buffalo herds when they were no more than a tiny speck on the plains, the average American pioneer was half deaf and half blind. It is probable that much of the Indians' superiority was a function of training but it is possible also that they had real physiological superiorities in auditory and visual capacities. It is certain that some early pioneers who did not have or did not differentiate the important abilities of hearing and seeing at a distance sometimes paid for their disabilities with their lives.

The frequency with which intercultural comparisons have been made does not mean that the effects of culture on the judgment of "disability" can be found only by comparing primitive and civilized groups. Intracultural comparisons can be made also. Consider the German male who received a sabre cut on the face in a duel. Such wounds sometimes resulted in muscular and neurological injuries which, like the lips of the Ubangi, affected the person's ability to eat, speak, and kiss. In the United States such an injury might lead to prompt and vigorous application of rehabilitative measures to restore or improve the affected functions. There is no evidence, however, that such "marks of honor" were perceived in pre-World War I Germany as disabilities or as defects that required remedial treatment. They were visible proof of the positive abilities "to be brave" and "to defend one's honor."

Similarly, it is instructive to consider physical abilities, such as acuity for sounds, which have little practical importance in our culture. Some Americans are able to perceive sounds having a frequency of 20,000 cycles per second, but many persons are either lacking or severely impaired in this ability. The perception of such high-frequency sounds is presently of no practical importance in our culture and is hardly differentiated from other hearing abilities except by a few psychophysicists. Impairment in this ability can be precisely measured and rigorously demonstrated. Yet, when it is found there is no suggestion that it is of any importance, that it has physical, psychological or social effects upon the person, that he should seek remedial measures, or that he should "compensate" in some way for his lack. The variation in physique leading to limitation in ability is evident; but the judgment of "disability" is withheld. Suppose that sometime in the future the ability to hear frequencies of 20,000 cycles per second should become important. The sequence of social and psychological effects that would follow is clearly predictable.

This type of analysis of the meaning of physique suggests that it may be fruitful to think of physique, and the abilities that are associated with particular variations in physique, simply as tools for behavior. We can then make the following generalization: a disability exists only when a person lacks an adequate physical tool for behavior and this lack is perceived by the culture in which the person lives as making the person less able than his fellows. If a particular tool is not differentiated or required by a culture, its lack or impairment in a person cannot be a disability. If the tool is differentiated and valued by a culture but conflicts with a "higher" physical, social, and psychological ability, the lack or impairment will not be perceived as a disability.

### *Variations in Physique Leading to Socially Imposed Handicaps*

There are some variations in physique that are socially handicapping only. These variations do not directly impose limitations on the abilities that are required by the culture in which the person lives, but they are perceived by the majority as being undesirable. For example, in some cultures all redheaded infants are considered evil and killed immediately. In our own culture, a black skin, regardless of the brain power that may be under the skin, disqualifies a person from attending some universities. A female physique is a disqualification for many jobs that are well within the capacities of women. Women in the United States do not become barbers to men, although this is a common occupation for women in other countries. Surgeons are rarely female although the skilled cutting and sewing of small objects that surgery requires is often considered a task at which women excel.

The social discrimination and prejudice against women, Negroes, and members of other minority groups who can be distinguished by their physiques are commonly known and do not require additional emphasis here. It is evident that some limitations on behavior are not disabilities but socially imposed handicaps. Moreover, it is clear that the handicap is not *in* the body nor *in* the person but is a function of the society in which the person lives. This is true also of handicaps that arise from physical standards. These standards often seem as arbitrary and nonsensical as the killing of redheaded infants.

Although they are readily seen to be "funny" rules and they do not circumscribe behavior as completely as prejudice, they may have as drastic psychological effects in situations where they are imposed. Carious teeth, for example, may prevent a person from securing a teaching credential in the State of California. An airline hostess must be between 5 feet 3 and 5 feet 7 inches tall. Individuals who are "too tall" or "too short" relative to an arbitrary standard may not serve in certain police departments or in the armed forces. The newspapers recently reported the case of twins from Worcester, Massachusetts, who wished to enlist in the Naval Reserve. One was accepted, but his twin who was a quarter-inch shorter did not meet the height requirement and therefore was rejected!

We cannot discuss here the origin of social stereotypes, the reasonableness of arbitrary standards for physique or the social expectation that certain behavior necessarily follows directly from physique. It may be sufficient to note only that physique is one of the criteria for social classification. It often determines how a person is expected to behave and what he will be permitted to do.

The social criteria are neither universal nor permanent. They may be different for different cultures and even in the same culture they may change over a period of time.

The criteria for beauty offer an illustrative example. The concept of beauty is a relatively simple one. By the time the average child is 4½ years old, according to the norms of the Revised Stanford Binet Tests, Form L, he is able to perceive and understand that curly hair is more beautiful than straight hair, a Grecian nose is prettier than a broad, flat, or a curved nose; relatively thin lips, and ears that lie close to the skull are nicer than their opposites. Like their elders, children do not see physical characteristics in isolation. Beauty, goodness, prestige, high moral qualities, social security, and acceptance can rarely be disentangled.[22]

In the light of the evidence cited in the previous section, the cultural relativity of the physical characteristics considered beautiful need not be labored. The cross-cultural evidence makes it clear that, as the philosopher says, beauty is in the eye of the beholder.

There are few, if any, universal standards of attractiveness. In the female, for example, thinness and fatness, powerful muscular physiques and fragile delicate physiques, large, long, pendulous breasts and small upright breasts; flat and narrow buttocks and buttocks protruding to the point of steatopygia are all valued and considered beautiful in some cultures.

Among the Kwoma "the big strapping women, who could carry large loads of produce or firewood up the mountainside . . . were the females that cause Kwoma men to smack their lips and make lewd comments." [23] How would these women behave if they lived in Japan and were required to learn the routine of the delicate, graceful tea ceremony?

Within our own culture standards for beauty have changed radically in less than two generations. It was not long ago that women who had "skinny" hips emulated Lillian Russell, the glamour girl of the 1890's, by tying pillows over their buttocks and eating without stint to fatten the neck, the shoulders and the arms. It was only yesterday that the skinny, breastless, hipless "flapper" was the beauty ideal. Today a casual leafing of any magazine will reveal the social necessity of large breasts on a slender figure.

Assume that three women, each having one of the valued physiques, but entirely unchanged in other respects, were systematically placed in each of the three periods from 1890 to 1955. Would they be likely to change in behavior? Would they become different kinds of people? What would be the critical variable, their physiques or the differing life situations with which they had to cope?

It is evident that social expectations which have the force of standards will influence behavior. A person who has a socially approved physique will be treated differently and will be expected to behave differently than persons whose physiques deviate from the social ideal. Obviously, therefore, the self-image of the person will also be affected. It is difficult to escape becoming the person that others believe one to be. In large measure the self is created by social interaction with others. No person can develop a wholesome personality if he encounters only derogatory attitudes.

It cannot be claimed that the physically disabled are exceptions to these generalizations. It is not correct to state that the physical limitations we have called *disabilities* invariably call forth universal social expectations. The roles assigned to the disabled and the behavior expected from them are not fixed. In Turkey blind men are preferred as readers of the Koran, for their prayers are believed to be more welcome to God than the prayers of others. A blind Catholic, however, cannot become a priest. If the person with a disability has sufficient prestige and status, the desirability of his role may be so great that his disability will be imitated. Princess Alexandra, who became the wife of Edward VII, walked with a limp. At the time she married a fad spread among thousands of women on the European continent so that they walked with the special, prestigeful, limping gait known as the Princess Alexandra Walk!

Hanks and Hanks have shown that individuals with physical variations that are perceived as disabilities are assigned different roles in different cultures.[24] They may be treated as pariahs or as economic liabilities; they may be tolerantly utilized, granted limited social participation, or just let alone. These variations in assigned role, social treatment, and behavioral expectations are not functions of the disability. Instead, the Hanks' hypothesize, the adverse treatment of the disabled is a function of low productivity or unequal distribution of goods in proportion to the size of the population; the maximizing of competitive factors in achievement; and the evaluation of criteria for achievement in absolute ways rather than relative ways.

These are promising hypotheses that appear to agree with the available evidence. Whether or not they are true or whether other hypotheses are equally tenable are problems for further investigation. It would be of great help to know why and how variations in physique lead to the imposing of social limitations or handicaps. The origin of social behavior is a problem that cannot be discussed here, however. It is sufficient for our present purpose simply to note that variations in physique, with or without ability limitations, may lead to social emulation, social approval, or social limitation.

It is society, far more than the condition of the body, which determines what a person will be permitted to do and how he will behave. All cultures place values upon certain aspects of physique, although different aspects of physique may be differentiated as important in different cultures and different values may be assigned to the same variations. Nevertheless certain generalizations may be made:

1. Physique is a social stimulus.
2. It arouses expectations for behavior.
3. It is one of the criteria for assigning a person to a social role.
4. It influences the person's perception of himself both directly

through comparison with others and indirectly through others' expectations of him.

5. Comprehension of the kind, extent, and degree of socially imposed handicaps on persons with atypical physiques is basic to an understanding of the somatopsychology of physical disability.

### *Variations in Physique Leading to Emotional Handicaps*

Some variations in physique do not produce ability limitations nor do they instigate social handicaps. They may be seized upon, however, and utilized by the person as a defense against facing other problems. For example, a girl may fixate on a small facial mole and moan that it is ruining her life. If only she didn't have the mole boys would like her better; she'd be less irritable; she'd get along better with her parents; she'd be able to study better because she wouldn't need to worry about whether other children were looking at her, laughing at her, and criticizing her. There is clearly no ability limitation. In addition her friends may honestly say that the mole is so small few people even notice it or if they do, more frequently than not, it is considered an attractive "beauty mark." Nonetheless the girl refuses to be comforted. If she seems unfriendly, irritable, and inconsiderate of others it is "because" the mole on her face makes her so. A similar situation may be encountered in individuals who have normal variations in physique that are socially undifferentiated or not assigned social meaning.

Macgregor and Schaffner have reported that such individuals sometimes seek plastic surgery on the assumption that the change in physique will automatically lead to great social and emotional improvements.[25] They show clearly, however, that the basic problems are psychiatric and not somatopsychologic. If one "blemish" is removed, the individual is either dissatisfied with the result or he readily finds another physical characteristic upon which to project his feelings of insecurity. Physique for such individuals has unique personal meanings that are entirely unrelated to ability limitations or to social handicaps. Moreover, it is questionable whether there is any direct relationship between the variation in physique and the emotional handicap. The body in these cases is simply the excuse for, not the cause of, psychological maladjustment.

These psychiatric cases present separate and complex problems that cannot be considered within the framework of somatopsychology. They are mentioned here primarily because they have a surface similarity to somatopsychologic problems which may confuse the unwary investigator and obscure the essential, underlying relationships between physique and behavior.

It is unquestionable that normal variations in physique and physical disabilities are sources of psychological disturbance for some children. It is equally unquestionable that similar variations and disabilities in other children are not sources of psychological disturbance.[26,27] Workers in somatopsychology may differ as to the reasons why the same physical variation leads to emotional disturbance in one child and not in another, but there is universal agreement that variations in physique need not necessarily lead to emotional handicaps.

Except for the psychiatric cases, the following generalizations seem reasonable:

1. No variation in physique requires psychological maladjustment.
2. If an emotional handicap exists in a person who has a physical disability, it does not stem directly from the disability but has been mediated by social variables.
3. The mediation between physical status and psychological behavior occurs in the following way:
   (a) The person lacks a tool that is required for behavior in the culture in which he lives, and he knows that he lacks it.
   (b) Other individuals perceive that he lacks an important tool and devaluate him for his lack.
   (c) The person accepts the judgment of others that he is less worthy (or, to the degree that he is a product of his own culture, he judges himself as less worthy) and devaluates himself.

The (a) (b) (c) sequence is a unit. If (a) or (b) do not occur, (c) does not occur. If (c) does not occur, there is no emotional handicap.

## *Variations in Physique Leading to a Combination of Disability and Handicaps*

Disability, social handicap, and emotional handicap have been isolated in order to show that they are separate and independent phenomena. Of course, we must now say at once that various combinations are the rule rather than the exception.

The analysis in itself, however, helps to account for the great variation in behavior that may be observed in people who vary in physique. Knowing the components of a combination and their interrelationships, especially in the light of cross-cultural contexts, enables us to begin to understand diverse phenomena that previously were obscure and incomprehensible.

We can begin to understand not only the major question of how it is that two similar individuals with similar disabilities can behave in different ways, but also such apparently diverse phenomena as why the behavior of a child who is blind may change when he understands for the first time that he is blind, and why the task of telling the child is so traumatic for parents.

Moreover, the analysis points to some of the critical variables that affect the behavior of those who have been judged to be disabled. If we are faced with behavior that is undesirable, it is possible to see what has to be changed. We need no longer conceal our ignorance under the guise of respecting individuality. It may be true that "each person is different," but it is neither true nor helpful to "explain" all reactions to disability in terms of characteristic and unchangeable functions of the disability itself or the person.

In actual practice, within a culture that has established standards for physique which seem right and natural, it is difficult for the somatopsychologist to step outside of his own ethnocentrism. An example from within the culture may help to clarify the issue.

> Ever since he was a small boy, Edward G. knew that he wanted to be a policeman. When he was 21 years old, he took the Civil Service Examination for patrolman, and he passed the mental and physical tests with flying colors—except for one item. He was 5 feet 3½ inches tall, and the regulations said that a policeman had to be 5 feet 4 inches tall.
>
> Edward was desolate. Although he knew that it was not true, he claimed that a mistake had been made in measuring him, and he demanded a remeasurement of his height.
>
> For three days Edward remained in bed and had his friends pull on his legs and his head so that he was stretched out to the fullest possible inch. Then, thirty minutes before he was due to be remeasured, Edward persuaded a friend to hit him a sharp blow on the top of the head with a piece of wood. The blow raised a lump of considerable size.
>
> Edward immediately raced to the examination and had himself measured. The stretching of the previous few days together with the bump on his

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head was more than enough to raise his stature to the required 5 feet 4 inches, and he was sworn in as a policeman.

Edward was a good policeman. In three years' service he received several commendations and one award for bravery in capturing an armed robber. One day, however, he was called out to march in a parade and lined up with other policemen who also were supposed to be of minimum height. By comparison, it could be seen immediately that Edward was perceptibly shorter than the others. A "split and polish" officer measured him on the spot and found that he was now only 5 feet 3 inches tall. Two weeks later, Edward was no longer a policeman.

Dismissal from the police force was a great shock. Some of the people Edward had dealt with in the line of duty now taunted him; others laughed. Edward became more and more convinced that he was no good, not useful for anything. If anyone called him "shorty," he flew into a rage. If he couldn't reach something on a high shelf, he was morose for days. "If only I were taller," he said again and again.

At last report Edward was in a "nursing home." He was not psychotic, but neither was he mentally well. Severely maladjusted is probably the term that best describes him.

Now how can we explain this case? Did his shortness *cause* his behavior? Obviously, just to ask the question is to realize its absurdity. Did his shortness prevent him from being a good policeman? Well, yes and no. When he was a policeman, he was a good one, but according to the standards, he had a disability for being a policeman and therefore he couldn't be one. Should we say that if Edward had been a different kind of person, if he had courage and social interest, he would not have broken down? Again, all we can answer is yes and no. Every person has his breaking point, and Edward reached his. On the other hand, while he was a policeman, he was a good policeman and a worthy citizen. He did not become maladjusted until he accepted the evaluations of the important "others" and agreed that he was "no good."

Although this case has many important aspects, it is relatively simple in structure and uncluttered with the emotionality that often surrounds the discussion of "real" disabilities. The tool loss leading to social handicap and emotional handicap can readily be seen. It is a good case to remember when platitudes about deafness, blindness, and crippling are offered as explanations for behavior. "*Because* the deaf, blind or crippled are . . . " or "*because* that's the kind of person he is," are rarely true or useful answers.

In somatopsychology we deal primarily with processes and interrelationships and not with static phenomena. Our further understanding depends upon the development of a human psychological ecology which will permit us to describe in concrete detail the relationships between human beings and their psychological environments in ecological rather than valuative or judgmental terms. A beginning has been made in this section with the description of when and how a variation in physique may become a disability and a handicap.

## UNDERSTANDING THE BEHAVIOR OF THE PHYSICALLY HANDICAPPED: SCIENCE AND THEORY IN SOMATOPSYCHOLOGY

It is not enough to have some background knowledge of how disabilities and handicaps are created, in general. Our culture has a well-developed value system relating to variations in physique. To change the negative attitudes of the culture toward those who are judged to be disabled may require hundreds of years of systematic labor. In the meantime we are confronted with the practical problem of helping "the handicapped" to live with some measure of usefulness and happiness.

The evidence on one point is clear. Children who have disabilities, as a group, tend to have more frequent and more severe psychological problems than others. Why does this occur, and what can be done about it?

It is evident from our earlier analysis that it is not sufficient to say, for example, "John is blind; therefore he has severe problems of adjustment." It is necessary to say, "John is blind. In the culture in which he lives people pity those who cannot see. The blind are perceived as dependent individuals who must be taken care of and who cannot compete for many of the most desirable goals in life. John, as a member of his own culture, tends to see himself in this way also. He perceives clearly the low esteem in which he, as a blind person, is held; the prejudice and discrimination that are raised against him; and his lack of status in society. He agrees that he is a less worthy person than those who can see. Therefore, John feels inferior and has severe problems of adjustment."

Expressed in this way, it is clear that not blindness but the social problem is the critical variable. This is true not only of blindness but of other variations in physique also. Some individuals who shrink from the physically deformed are aware that a person is not responsible for how he looks and that avoidance is ethically unjustified. It is contended, therefore, that the repugnance is instinctive, natural, and really can't be helped. There is no reason to believe that this is true. There is every reason to believe that attitudes toward variations in physique are learned. First, the variations that are perceived with horror in one culture are accepted without emotion in another culture. Second, within a culture there are many individuals who do not feel the culturally sanctioned emotions. Not everyone in the United States is emotionally disturbed by the sight of a cerebral palsied child or a congenital amputee. Third, many who do experience emotional distress on first exposure to a particular disability also experience rapid adaptation. The horrified student who sees only disabled bodies at a school for the handicapped changes quickly to the experienced therapist who is only faintly aware of differences in physique but keenly aware of differences in personality.

Disability appears to be as much a problem of the nondisabled majority as it is of the disabled minority. Maladjustment in "normal" individuals with respect to physical disability is widespread. However, we cannot change our society overnight, and social attitudes often present problems that can be dealt with only indirectly.

It appears that a dead end has been reached. If disability is relatively fixed and society is relatively inflexible, that leaves only the person. Inasmuch as the source of behavior is not *in* the person in any psychological meaningful sense, what can be done?

Suppose you are approached by a mother who has a deaf child. "I understand that deaf children tend to become maladjusted," she says. "What can I do to prevent this?"

"Well," you say, "how old is your child? Is it a boy or a girl? How much hearing does he have? Are there any other children in the family? Do they hear well? How old were you when the child was born? Were you ill during pregnancy? Was birth normal? How old is your husband? Is anyone else in your family deaf or hard of hearing? Does the child show signs of maladjustment now?"

The questions, of course, can be endless. A curious thing about them is that there are only common sense reasons, or often no reasons, for believing the answers have any direct relationship to the child's behavior. After the answers are gotten you may say, "Treat him as if he were normal, but *don't* expect as much of him as if he were normal. Don't spoil him, but on the other hand *do* make allowances for his disability. A special nursery school for deaf children would be a good thing, but then he has to live in a world with normally hearing people, so a regular nursery school would be a good thing too. It all depends on what kind of child he is." In other words, we don't know. We don't know in general and we don't know what it depends on. The responsibility is passed back to the parent with directions that are contradictory and impossible to fulfill.

Similarly, suppose a parent brings a six-year-old cerebral palsied child and raises the specific question: "Can my child get along in school?" Often we don't know. After asking innumerable questions all that can be said is, "Let's try him out and see." If he gets along, then he gets along, and that's fine. Of course, the waste, frustration, anxiety, and psychological damage to the child if he doesn't get along are unfortunate, but inevitable. Clearly this is an unsatisfactory state of affairs.

It is true that in some instances an individual child can be studied. In some degree it can be determined what "kind" of child he is and how he interacts with his environment. The function of science, however, is to solve problems by means of general laws that can be applied to the individual case. Generalization and certainty of prediction are at the heart of science. Progress in other sciences has occurred only to the degree that the theories were constructed which led to general laws that held without exception. If each case must be studied individually and nothing can be said about the psychological effects of disability in general, there can be no science of somatopsychology.

The problem of individual differences and the search for generalizations that can be applied to every individual case are not unique to psychology. They are common to all science.

Consider the following example from the field of mathematics. What is the area of a circle? In one sense this is a stupid and unanswerable question. It is possible to complain that there are infinite numbers of circles, from a pin point to the circle of the universe, all differing in area. What circle is meant? Where is it?

How is it possible to say anything about circles in the abstract? It is indisputably true that the answer to the question depends upon what "kind" of circle it is. If little is known about circles in general, it may be reasonable to ask the following questions: Where is this circle? Is it here on earth, up in the air, or underground? How did it get there? Are there any other circles nearby? Is it hollow or solid? What color is it? Is it made of steel, wood, soap, or is it just a line on paper? How was it formed? When did it get there? Does it surround anything?

Every person who knows the general law, Area=$\pi r^2$, however, knows that these questions are irrelevant and meaningless. The general and invariable relationship between circles and their areas makes only one measurement of importance in determining the area of a particular circle. If this relevant context is known, it is possible to understand and predict the area of any circle by asking just one question: What is the radius? It is then possible to forget the thousand-and-one ways in which circles may differ. These other variables may be important in other relevant contexts, but they are of no value in predicting or controlling area.

If the relevant context is not known, two procedures are possible: (1) An attempt can be made to cover ignorance by asking many irrelevant questions, as is often done in somatopsychology. This procedure will yield meaningless answers that leave us little wiser than before. (2) If, by some fortuitous circumstance, we lived in a world where red circles tended to be larger than black ones, it would be possible to compute a correlation and reach the empirical generalization that red circles tend to be larger in area than black ones. In such a case predictions might be made with better than chance success, but there would still be much uncertainty. Some black circles would have a greater area than some red ones. We could speak only of "tendency" and not of "certainty." Proceeding on the basis of correlational evidence and empirical generalization, as is now often done in somatopsychology, it might be contended that every circle is really different and therefore must be treated individually. The only way to be sure would be to produce a specific circle about which information was desired and measure it. Obviously, this procedure is possible, but it is much more useful to have a general formula that can be applied to any circle. General laws in somatopsychology would be equally useful.

Our goal is to be able to make psychological predictions. The mathematician requires mathematical data in order to make mathematical predictions. Physical characteristics such as color, material, or position in space are not helpful to him. The geneticist requires genetic data in order to make genetic predictions. Physical data such as weight, psychological data such as temperament, or social data such as the number of animals in a cage are useless for genetic prediction.

Is it reasonable to suppose that somatopsychological predictions can be made from the physical data classified as disabilities? Physical characteristics must be the starting point, but they are just as phenotypic or superficial for somatopsychology as they are for genetics. Progress in somatopsychology will come only when a somatopsychological theory is developed which permits the transformation of physical data into psychological data.

## A WAY OF THINKING IN SOMATOPSYCHOLOGY

A commonplace remark is that we need more research on disabled persons. Undoubtedly that is true, but it is well to understand the kind of research that is required.

There is a myth in our culture about the open-minded scientist who approaches a problem without any preconceptions and reports only the "facts." As we have seen, however, the number of questions that can be asked about any phenomenon is limited only by our ingenuity. Not all questions are equally good questions and not all "facts" are equally useful in the sense that they lead to further understanding.

For example, we may adopt the role of the open-minded scientist who wishes to study the psychology of the exceptional. What shall be investigated? It is perfectly possible to measure the big toes or the length of the eyelashes of children who are blind and compare the findings with similar data from children who see. No one has done such a study, however, and no one is likely to. Why? Because there is no reason for believing that such measurements will contribute anything to our knowledge of behavior. Even if the two groups were completely different in these characteristics, the result would have no meaning unless there was some way of explaining it. Similarly, it is possible to study the psychology of people who wear size 9 shoes – or even the behavior of people with size 10 feet who wear size 9 shoes – but no one does this. In other words, open-minded is not synonymous with empty-headed. A scientist does not study a problem unless he has some reason for believing it to be important. If he believes that a particular investigation is important, obviously he must have some hunch, reason, or theory for believing so. Before he begins, his preconceptions have already been expressed by the problem he has selected for study and the methods of collecting data that he plans to use. In other words, he has a theory. The random collection of "facts" is not science. Research undirected by a theory of probable relationships is blind and rarely productive. The investigator, before he begins, must have a clear idea of what he is going to look for and how he is going to look. The questions that he asks, in great measure, determine what he will find. If his hunch, hypothesis, or theory is approximately correct to begin with, it is likely that his work will be fruitful.

In somatopsychology it is evident that despite considerable research effort, only limited progress has been made in answering the basic question of how physique may be related to behavior. Examination of the literature shows that considerable progress has been made in other fields, such as medicine, in coping with the problems of disability. In somatopsychology there is still much discussion of the same problems that were seen to be critical 100 years ago. Answers to these problems are scarce or contradictory and exceptions to the rule are frequent.

Whenever a question is posed that does not yield generalizations that can be applied without exception to the individual case, it is time to ask whether the questions are meaningful and whether they are answerable.

### *What Is an Answer or Explanation?*

All scientific explanations are essentially descriptions, but there are different levels of adequacy. The least adequate explanation is simply to recognize and affirm that something is and perhaps give it a name. The best explanation describes the greatest amount of data in the fewest terms. A few examples may make these statements more meaningful.

### *Naming Explanations*

It has been observed that salmon are spawned far up in the headwaters of streams. In their second year, they travel downstream to the ocean which is warmer, saltier, and contains less oxygen than do mountain streams. Why do they do this?

In the past it has been customary to label behavior of this kind as instinctive. There is an instinct *in* the fish to behave as it does. This naming of a behavior often yields a satisfying feeling that the behavior has been explained. Actually nothing has been explained. A word has been substituted for an observation of behavior, but we are no wiser than before. The salmon does what it does. First, it is observed that the salmon swims to the ocean. Second, the behavior is labeled an instinct. Third, the behavior is "explained" by saying there is an unknown "something" in the fish that makes it behave this way. It is precisely this unknown that must be investigated. Why do salmon behave this way? Naming the unknown an instinct does not contribute to understanding, and to the extent that it tends to choke off further research, naming is not helpful.

Not long ago it was discovered that the essential factor was the relationship between light and photosensitive receptors in the skin of the salmon. The receptors are covered by pigment which is gradually lost. As the photoreceptors are stimulated by light the fish seeks deeper and deeper streams until eventually it reaches the ocean. This is an explanation. It explains both "instinct" and the lack of it. Prediction and control are possible. If a fish doesn't migrate the investigator now knows where to look – at the photoreceptors. If it is desirable to prevent fish from migrating the investigator knows what to control – light.

Young children and primitive people employ many naming explanations. Things are because they are. They act as they do because that is their nature. Heavy objects have the essential nature of heaviness; that's why they fall to earth. A sailboat moves because it *is* a sailboat and that is its nature.

Of course, older people and civilized people see immediately that an object falls because of its relationship to the earth; a boat moves not because that is its nature but because of the relationship between the area of its sails and the strength of the wind. Expressed in this way, it is clear that prediction is possible because the relevant context is understood. Nothing *is* in itself. Everything occurs in a relevant context.

But how quickly we forget once we move out of the area where the essential relationships are known.

It is observed that a child appears to be wary of adults and clings closely to his mother. He does not mix easily with other children. He is often seen watching other children as if he'd like to join them. Why does the child behave in this way? Because we say, he *is* shy, that is, the shyness is something *in* the child. It is a "thing" that he carries around with him. This is essentially the same kind of "explanation" that was considered unsatisfactory for the salmon. First the behavior is described, then a name is assigned to the behavior, and finally the behavior is "explained" by the name. The question, "Why does the child behave in this way?" has now been changed to, "Why is the child shy?" but an answer in terms of the relevant relationships has not been given.

The same naming phenomena occur in somatopsychology on a more sophisticated level. It may be observed that a certain person is deaf. He also engages in the behavior that may be classified or described as being suspicious of others. Why does he behave this way?

"Well, this person is deaf. Now it is a finding of psychology that deaf people tend to be suspicious. If this person were blind and suspicious, that would be unusual, but he is deaf and it is not unusual for deaf people to be suspicious. He is deaf. That's why he's suspicious. It is in the nature of deafness or deaf people to be suspicious."

It should be clear at this point that another circular "explanation" has been given that is no more adequate than the concept of instinct. It doesn't help to add that deaf people are suspicious because they believe that other people are talking about them. Not every deaf person is suspicious. Some do not believe others talk about them. Other deaf people may believe it but don't care. Neither the behavior of the suspicious deaf person nor the behavior of the unsuspicious deaf person has been explained.

Naming is not explanation.

## *Historical and Contemporaneous Explanations*

Assume that your class meets in a room without windows. The sun is shining outside, but it is not shining on you. Why isn't the sun shining on you?

Two kinds of explanation are possible. One kind of explanation is based on the history of the objects and might go something like this:

> The sun isn't shining on me because I'm sitting in this room.
> Why are you sitting in this room?
> Well, because I'm going to the university.
> Why are you going to the university?
> There are two reasons. First, because the university is here to go to. Back in 1860 a leading citizen decided to build a university. He made a lot of money in the slave trade and didn't know what else to do with it. so he thought a university would be a good idea. Of course, he made all of this money in the first place because his family had disowned him and he wanted to prove himself. So, in one sense the sun isn't shining on me or any of the others in the class because the university benefactor wanted to prove himself. The second reason is purely personal and applies only to me. You see, back in 1800 my paternal great-grandfather took his four boys and headed west for Kansas. . . .

It is evident that a complete historical explanation is an infinite regress that leads back to the origins of the universe and to the detailed history of every individual involved. Various shortcuts, of course, can be taken, but the final answer to the question posed must be different for every person in the class. The sun isn't shining on Joe because he is studying to be a doctor. The sun isn't shining on Jim because his parents made him come to college. The sun isn't shining on Mary because she is looking for a husband. Every case is different. These answers sound queer and unbelievable, not because they are false, but because they do not "explain" the relevant context that most of us already know.

In a contemporaneous explanation, no attention would be paid to particular objects. Instead, since this is a physical question, attention would be directed to the physical field forces that are operating: The sun does not penetrate opaque objects. The psychological or social motivations of the individual are irrelevant. A statement may now be made in if-then terms which is always true: If a person is sitting in a room made entirely of opaque substances, then the sun will not shine on him. There are no exceptions. In every case, regardless whether the room is built of brick or stone or building paper, and regardless whether the person is Joe or Jim or Mary, an immediate correct prediction for individual cases can be made. Moreover, since the phenomenon is now understood, it is possible to make the prediction before a room is built and to control the shining-of-the-sun-on-persons-or-objects as we wish. It will be observed that this kind of explanation accounts both for sun-shining-on-objects and sun-not-shining-on-objects. It is independent of any particular objects and it is independent of the past.

Consider a similar situation in medicine. A child is limping down the street. Why does he limp? Because he had polio when he was five years old. It should be evident immediately that this is a historical explanation which does not explain. The child does not limp because he had polio when he was five years old any more than the sun does not shine on Mary because she is looking for a husband. There are many children who had polio when they were five years old who do not limp. It can be said, of course, that each case is different. Some children who have polio become crippled and some do not. It all depends on the child. But *what* does it depend on? What should be investigated? If the case histories show that bright children contract crippling polio more frequently than less bright children, as is sometimes claimed, should physicians investigate intelligence?

Fortunately the physician has a contemporaneous explanation that he can apply to individual cases. He may say that if nerves *x*, *y*, or *z* are destroyed the muscles in the legs that are innervated by these nerves will atrophy and the child will limp. It will be observed that this explanation is independent of any particular child and of any particular disease. It holds without exception in every case. Any injury that destroyed nerves *x*, *y*, or *z* will produce the same behavior. The physician is thereby able to understand why two similar children who had the same disease at the same age may walk differently, while two children who had different diseases may walk in the same way. By testing the nervous function of a particular case he is able to predict before the child takes his first step whether or not limping will occur. The prediction can be made even if the physician has never seen the child before and knows nothing else about him. Control of this behavior is not yet possible, but knowledge of the relevant context between nerves and muscles and limping guides future investigation. It tells the researcher where to look and what to study. The thousand-and-one other ways in which children differ in health and in illness are irrelevant at this point.

Of course, contemporaneous explanation also leads to an infinite regress. How and why are nerves destroyed by disease? The answer to this question will, in turn, permit further questions to be seen. The questions, however, are meaningful and they are answerable. Historical explanations, except perhaps for certain problems in public health, are dead ends. The implications of this statement deserve to be spelled out.

If a child limps because he had polio, and polio causes crippling, and the polio attack occurred last year, what can be done now? The polio is a past event. The child doesn't have polio now, but only a residual from the polio. It is not possible to influence past events but only the factors that are operating in the present. Historical and contemporaneous explanations lead in two radically different directions, and the influence of direction cannot be overestimated. Historical explanations lead from the present to the past: "It is too bad that the child is crippled because he had polio last year, but that's the way the ball bounces." Contemporaneous explanation leads from the present to the future: "The child is crippled because nerves *x*, *y*, or *z* are destroyed. Is there some way of regenerating these nerves? Is it possible that other intact nerves may be attached to the affected muscles?" Historical explanations lead to excuses. Contemporaneous explanations lead to continuous investigation.

Rehabilitation of the disabled is presently plagued with this problem. Few researchers in somatopsychology are as yet thinking in terms of contemporaneous, field-contextual descriptions. Almost all explanations are in terms of naming, assigning qualities to the individual, or tracing history. For example, a child doesn't talk. Why? Because he lost his hearing when he was two years old, that's why he doesn't talk. An adolescent is very dependent. Why? Because he's been blind since birth. It is too bad, but that is the way deaf children and blind children are.

It is necessary only to see a deaf child who talks and a blind child who is not dependent to realize that historical explanations do not explain. From the standpoint of contemporaneous explanation children who have physical disabilities may tend to show certain kinds of psychological behavior, not because of their histories but because of the psychological forces that are presently acting. If these forces can be understood, behavior will be amenable to change.

### *Empirical or Correlational Explanations*

One way of attempting to solve a problem is to investigate the frequency with which two variables occur together. This is a form of historical explanation projected to the future. It contains certain pitfalls, however, that deserve special mention.

Empirical *method* is basic to science. There are two ways of employing the method, however. One way is to make observations or conduct experiments to test a working hypothesis or a theory. A second way is to try to build up an explanatory theory from the observations. The first way is in general and productive use. The second way has sometimes been characterized as a determined attempt to obtain knowledge from ignorance. The difficulty with the second way is the ease with which human reason may be misled when the relevant context is not known.

For example, there is a statistically significant relationship between sight and intelligence. Blind children, as a group, earn lower I.Q.'s than children who see. There is nothing wrong with such a statement as a description, but it is misleading if it is used as a cause-effect explanation or as a means of prediction for the individual case. It cannot be said that blind children obtain lower I.Q.'s *because* they are blind. There are some blind children who test at the genius level. If the I.Q. of a particular blind child is explained in terms of his blindness, there is no way of explaining the high I.Q.'s of other equally blind children. An example from a field where the true context is known may clarify the matter.

In everyday life there appears to be a close correlation between the lightness of objects and their ability to float in water. Suppose a child shows you a 10 pound iron boat and asks you whether it will float. Depending on your own observations, you reply that it will not because it is "too heavy." Only "light" things will float and not heavy ones. If the boat were made of wood, then it would float, but since it is made of iron it won't. If the child now tells you about a visit to the seashore in which he saw big iron boats weighing ten thousand tons and they floated, what can you say? It is apparent that you do not have the correct explanation.

Similarly, consider these empirical observations: An almost perfect correlation has been found between the number of births that occur yearly in the city of Stockholm and the number of storks' nests that are built yearly in Stockholm chimneys. What conclusion can be drawn? Would you draw it even if the correlation over a period of 50 years were perfect?

There is a very close correlation between the number of fire engines that go to a fire and the amount of damage that occurs. Assume that you wish to reduce the amount of damage that occurs at fires, would you suggest that the number of fire engines be reduced?

These are not simply academic examples. They are essentially similar to empirical observations which have misled investigators in the past and continue to mislead in the present. A hundred years ago in the lowlands of Italy it was observed that individuals who left their windows open at night became ill while those who closed their houses tightly remained well. The disease was malaria, for obviously it came from the bad night air. The man who had a theory that not bad air but the mosquitoes that fly at night were responsible for the disease was obviously a crackpot. In France a hundred years ago it was observed that children who were fed cow's milk sickened and died while those who were fed wine remained well In the absence of a correct theory to explain the observation the French were quite right in praising alcohol and condemning milk as food for infants.

It is easy to see the "foolish" errors of others when the true relationships are known. The dangers of empirical explanation are less evident when the relevant contexts are not known.

Suppose a child plays hookey from school. Why is he a truant? An empirical investigation might determine that the school was directly northwest of the child's house. Further, if he left his house and continued in a northwest direction – regardless of whether he walked, roller-skated, or rode his bike – he went to school. On the other hand, if he didn't start out in a northwest direction or didn't continue long enough, he didn't go to school. These are "the facts." What should be done? Clearly, it is necessary to give the child training in walking, roller-skating and riding his bike in a northwest direction! That will correct his truancy.

No doubt this sounds very funny, but consider these situations. A child says the *w* sound for *r*. It has been found that if a child moves his speech organs in a particular way he will say *r* and not *w*. Therefore, if a child has such a defect give him training in saying the *r* sound. A child doesn't read. It has been found that in order to read a child must recognize words. This child doesn't recognize words. Therefore give him special remedial work in recognizing words. These do not sound so funny, but they are based on the same principle as the earlier examples, and they are just as likely to be wrong. Recent research on the successful treatment of reading disabilities by counseling, without remedial work, is highly suggestive.

The world is presently disturbed by the fact that there appears to be a correlation between the number of cigarettes smoked daily and the incidence of lung cancer. On a purely empirical basis, it can also be demonstrated that there is a close relationship between the increased incidence of lung cancer and increase in the following:

(a) consumption of margarine
(b) membership in the Democratic Party
(c) output of comic books
(d) number of aged in the population
(e) social freedom for women
(f) civil liberties for Negroes and other minority groups
(g) number of people who work for a living
(h) the cost of living

It is immediately evident that some of these relationships are meaningless or chance relationships that result from the simultaneous operation of independent forces. Some may reflect the influence of a third variable which is not listed here; for example, "tense" individuals may smoke more than others and also be predisposed toward lung cancer. None of the variables will permit precise prediction. Many career women who smoke a lot, eat margarine, belong to the Democratic Party, and read comic books do not get lung cancer.

Correlation is not explanation. An obtained correlation or empirical relationship is meaningless aside from the theory that is used to explain it. The most adequate theory will account for the negative cases in terms of the same concepts that are used to explain the positive cases. The collection of data is not the essence of science. A scientific investigation may be considered successful in the degree that it contributes to the reduction of empirical and quantitative statements and increases the number of qualitative statements that can be made about phenomena.

Inasmuch as many of the conclusions in somatopsychology are based on empirical evidence, these cautions may be worth heeding.

### *Summary*

The task of all science is to order or transform observational data to theoretical constructs in such a way that understanding, prediction, and control of phenomena are possible. The observational data provide a test of the "truth" of a theory, but the theoretical constructs are not directly derived from the data.

If a theory leads to increased understanding, it is considered an explanation. Complete explanation, however, is impossible. Science is truly an "endless frontier" in which a correct answer leads inevitably to further questions.

Adequate explanations appear to have several characteristics in common:

1. They are generalizations which permit application to the individual case.
2. They describe the greatest amount of data in the fewest terms.
3. They reflect a necessary and invariable relationship between certain events that occur in a specified context. The relationship is important rather than the qualities in an object.
4. They lead to understanding of what has to be changed in a relationship in order to bring about change in behavior.
5. They are expressed in dynamic, genotypic, contemporaneous terms and not in empirical, phenotypic, historical terms.
6. They point to further relevant research.

Progress in somatopsychology depends upon discovering adequate theoretical concepts to which data can be ordered. It has been pointed out that revolutionary advances in science have come not from empiricism but from new theories.[28]

## UNDERSTANDING THE BEHAVIOR OF THE PHYSICALLY HANDICAPPED: SOME CONCEPTS FOR SOMATOPSYCHOLOGY

Physical disabilities are physical. How is it possible to make psychological sense out of data that are not psychological? It is evident from earlier discussion that physique must be phenotypic for psychology. Psychological investigations based directly upon physique can lead only to naming or to empirical generalizations. Such generalizations can be expressed only in terms of tendency, correlation, or group differences that are significantly different from chance expectancy. If-then-always statements will not be made. There will always be many exceptions, and precise prediction will be impossible.

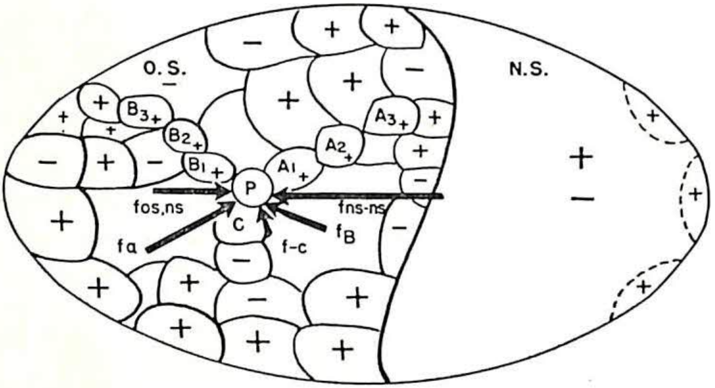
Examination of the research findings on physical disability indicates that this an accurate reflection of the current state of affairs.

In this section an attempt will be made to develop a new way of thinking about somatopsychology in dynamic, genotypic, contemporaneous terms. Discussion will be restricted to social psychological adjustment problems. The problems of individual differences, educational method and physical rehabilitation require extended discussion which cannot be given here.

As psychologists, we are not concerned with physical disability per se, but with the *behavior* that is associated with or appears to result from physical disability. The emphasis is on behavior. Psychological concepts, therefore, are required. Two such psychological concepts which permit the ordering of social-emotional behavior will be described. These are the concepts of *new psychological situations* and *overlapping psychological roles*. These ideas are not original with the present author. They were formulated by the late Kurt Lewin. Elaboration and application to the physically handicapped was made by Roger G. Barker and associates. The following discussion draws heavily on their work (See footnote 2).

### *New Psychological Situations*

Figure 1 represents a momentary point in time in the life space of a person. It shows a schematic representation of an old or familiar psychological situation and a new psychological situation.



| | | | |
|---|---|---|---|
| O. S. | Old situation | fa | Force toward subregions A |
| N. S. | New situation | fB | Force toward subregions B |
| P | Person | f-c | Force away from sub-region C |
| + | Positive valence | fos, ns | Force in old situation toward new situation |
| — | Negative valence | fns-ns | Force in new situation away from new situation |

FIGURE 1. *Old and new psychological situations.*

It will be seen that in the old psychological situation, there are many known sub-regions. Some of the sub-regions have been labeled "plus" to indicate that they are desired by the person and some have been labeled "minus" to indicate that they are not desired. Some paths to particular sub-regions have been indicated. Path A, for example, may represent going to the movies with a friend. The lines between sub-regions represent barriers that must be overcome. In this case, the barrier in sub-region $A_1$ may represent getting permission from mother to go; $A_2$ may represent finding a friend to go with; $A_3$ may represent having the money to get into the movies. Path B may represent "getting praise from mother," and the sub-regions to be passed through include making the bed in one's room, picking up toys, and washing one's hands and face before dinner. Path C may represent getting punishment from father and single sub-regions may represent "being impudent."

In general, in an old situation the behavioral possibilities are well structured. The person knows where different positive or negative goals are and what paths lead to them. This is true for everyone, handicapped and non-handicapped, adults and children.

In a new psychological situation the entire region is unstructured except for a belief that a positive goal lies out there. In order to reach the goal it is necessary for the person to move out into this unknown region. Since the goal is positive and attractive, but its unfamiliarity is repelling, the region is labeled both plus and minus. An example of a new psychological situation might be leaving home and mother for the first time in order to go to school when all that is known about school is that mother says "you will have lots of fun there."

From the structure of new psychological situations, the following statements can be made immediately:

1. The location of the goal and the path by which it can be reached are not known.
2. Entering the region in which the goal is located both attracts and repels.
3. The person's perception of the region in which the goal is located will not be stable. The region and the position of the goal will appear to change as the person's psychological position changes.

From these statements the following behavioral predictions can be derived:

1. A person in a new psychological situation will engage in wandering, vacillating, unstable trial-and-error behavior. Since the location of the goal and the paths by which it may be reached are unknown, behavior cannot be parsimonious. It must be tentative and cautious. The person will be alert to small cues. He will be easily influenced by peripheral stimuli. Behavior will change as the person's perception of the situation changes. If it appears that he is getting closer to the goal, he will do more of what he has been doing. If it appears that he is moving away from the goal, he will change behavior. Early behavior will be cautious, but if it is unsuccessful, it will be followed by more extreme behavior.
2. The frustration that accompanies repeated trial-and-error behavior will occur. The person will show the emotionality and the disruption of behavior that result from frustration.
3. The person will be in conflict. He will attempt simultaneously to reach the goal in the new situation and to withdraw to the safety of the old situation. The conflict will be intensified if the goal is highly attractive and the old situation relatively unattractive. Con-

flict will be intensified further if induced forces, external to the person, block the return to the old situation or add strength to the vectors toward the new situation.

It is now possible to make some if-then-always statements: A person will enter a new psychological situation if the psychological forces acting upon him toward the new psychological situation are greater than the forces away from it. (The impelling and restraining forces are amenable to more detailed description, but this will not be attempted here.) If a person enters a new psychological situation, frustration and conflict, and the emotionality and behavior disruption that accompany frustration and conflict, will occur. There are no exceptions. It is true for adults as well as for children. It is true for the physically normal as well as for the physically handicapped.

If this is true, the concept of new psychological situations provides a powerful tool for the understanding, prediction, and control of behavior. The multitudinous, but irrelevant, questions about the past need no longer be asked. The innumerable ways in which individuals differ may be ignored. For this aspect of behavior only one question is relevant: Is the person in a new psychological situation? If the answer is affirmative, the predicted behavior will occur.

We are now in a position to understand why the physically disabled, as a group, tend to have more frequent and more severe problems of adjustment: They are more frequently placed in new psychological situations which place severe, traumatic demands upon them. When a person is placed in a new psychological situation, he *must* behave according to the demands of the situation. People who incur physical disabilities do not become different kinds of people as a direct physical or physiological function of the disability. They remain the same kinds of people but now, by reason of their disability, they may be placed in different life situations. Especially, they may be placed much more frequently in new psychological situations. Their behavior will change according to the frequency and the degree of "newness" in the situations they encounter.

The behavior of individual, physically disabled persons who are not maladjusted may be understood in the same terms and placed on the same continuum. These individuals, for reasons which remain to be more fully described, are not in new psychological situations.

It may be speculated that some disabled persons successfully avoid new psychological situations. Other disabled persons may be in positions of special status or power. For example, the situation of a blind college instructor who is in a position of power where he can demand the attention of his class is markedly different from the situation of a blind college student. If only because of his greater knowledge of the material that students must learn and his power to give or to withhold grades, the blind instructor is on familiar ground. In high degree he can arrange the class to suit himself, taking full advantage of his skill with words and avoiding his limitations in writing or drawing on the blackboard. In many fields vocal dramatics and the ability to paint compelling verbal pictures are by no means less desired by listeners or inferior to diagrams.

In this instance the blind instructor is not in a new psychological situation and cannot be expected to show the behavior that results from new psychological situations. If he is equally powerful or skillful in other life situations, he will be a blind man who is not maladjusted, and we can readily understand why he is not emotionally disturbed. He would not be an unexplainable exception.

The personal characteristics and the past history of different disabled individuals, of course, may lead to behavior in new situations that is superficially different. Some individuals may be self-conscious, some may withdraw, some may seem to be aggressive. These behaviors, however, are only phenotypically different. Genotypically, they may all be ordered to the "cautiousness" that is required by the new psychological situation. A person can be cautious in different ways. The loud, boisterous person will often agree that he was only putting on a bold front while actually he was quaking in his boots.

One great value of this formulation, like useful concepts in other disciplines, is that it leads immediately to methods of control. If it is undesirable for the physically disabled to be maladjusted, one remedy is clear: *Reduce the "newness" of their life situations.*

It will be observed that a basic requirement for fruitful scientific thinking has been met. Physical data have been transformed to psychological data. The critical variable is no longer the physical disability, with which psychologists can't deal, but the psychological situation of newness. Disabilities have psychological effects not because it is in the nature of disabilities to require certain behavior but because they force the person more frequently into new psychological situations. It is evident that from psychological data, psychological predictions can be made.

### *Some Dynamics of New Psychological Situations*

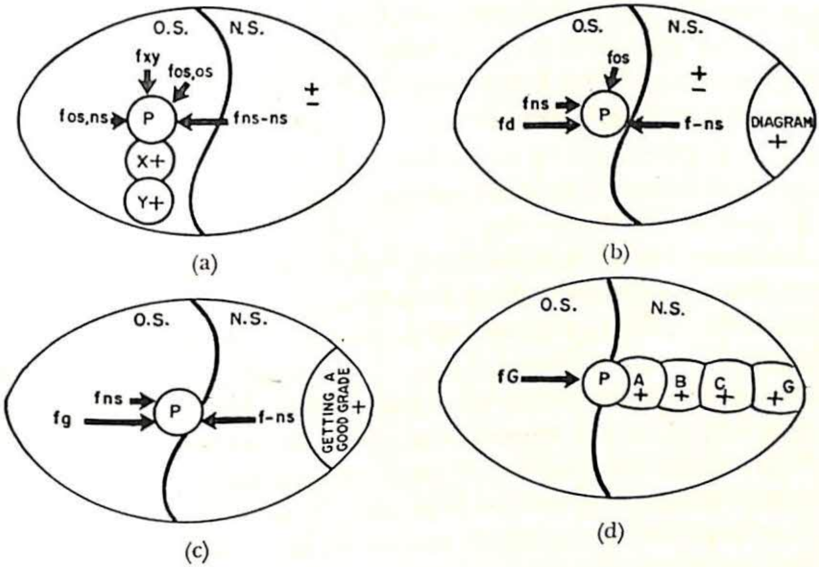
The situation of a blind student may be taken as an example. In contrast to the well-ordered structure that may be created by a blind professor, the situation of a blind student may become new whenever an instructor writes on the blackboard. The psychological effects of this situation depend upon whether the student is required to enter it.

Figure 2a illustrates the critical forces in the situation if the instructor says, "These two words, phenotypic and genotypic, which I have written on the board are important. You must remember them." The situation is not new for the blind student. He can remember the concepts without seeing them written. The goal of remembering is within an old and familiar situation. His blindness will cause no emotionality, no frustration.

Figure 2b shows how the situation may change if the instructor draws a diagram but then says, "The diagram shows only what I have just told you. You need not remember it." The situation may be new, but the blind student is not required to enter it. The vectors away from the new situation are greater than the vectors toward it.

Figure 2c illustrates the situation if the instructor says, "This diagram is basic. You must be able to reproduce it. I will ask for it on the next examination." If the student does not know how to reach the goal of learning to reproduce the diagram, the situation is new and the student must enter it. The strength of the forces acting on the student in the direction of the new situation is directly proportional to the attractiveness of the goal, i.e., the student's aspiration to attain it. The greater the aspiration, either directly for knowledge or indirectly for the ability to give a correct answer on the examination sheet and thereby obtain a high grade, the greater the emotionality and behavioral disruption that will occur.

Obviously, the same analysis is possible for other kinds of physical situations and other kinds of physical disabilities.



(a) (b) (c) (d)

| | |
|---|---|
| O. S. | Old situation |
| N. S. | New situation |
| P | Person |
| + | Positive valence |
| — | Negative valence |
| fos, os | Force in old situation to remain in old situation |
| fxy | Force toward remembering concepts of phenotypic and genotypic |
| fos, ns | Force away from remembering the concepts by visual cues |
| fd | Force toward learning diagram |
| f-ns | Force away from new situation |
| fos | Force to remain in old situation and not enter new situation |
| fg | Force toward goal of getting good grade by reproducing diagram |
| fns | Force toward new situation |
| f G | Force toward goal when sequence of steps is known (A+, B+, etc.) |
| fns-ns | Force in the new situation away from the new situation |

FIGURE 2. *Varieties of new psychological situations.*

### *Individual Differences*

In these terms, it is now possible to discuss individual differences in a meaningful way. Not all blind individuals react emotionally when another person draws on the blackboard. Some blind people don't go to college in the first place and thereby avoid the many traumatic, new psychological situations in which blind students may be placed. Among those who do go to college, some, by reason of greater intelligence or better guidance, may prepare themselves in advance so as to reduce the newness of the situations that may be encountered. The blind student who has arranged for a classmate to trace every diagram into his hand, to reproduce it later in three dimensions, and to check the correctness of his practice drawings, has made great progress toward his goal. His situation is shown in Figure 2d. It will be seen that the situation is not new; it is well structured. The sequence of steps that will lead him toward both momentary and long-range goals is known. The behavior predicted for new psychological situations, therefore, will not appear.

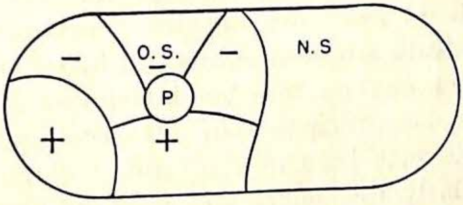
Another "kind" of blind student – perhaps one who is less intelligent, less well guided, or too proud to seek or accept the help he needs, who does not know the sequence of steps that will lead to attainment of the goal – will be in a new psychological situation and will show the predicted behavior. It is evident, however, that this will occur only indirectly because of the "kind" of person he is. The behavior is amenable to change with change in the structuring of the new situation.

### *New Psychological Situations in Physical Disability*

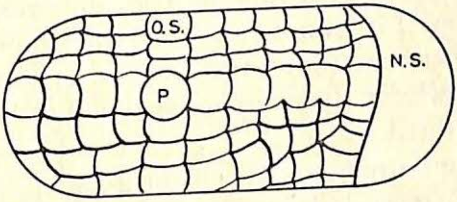
There are three kinds of new psychological situations that may be encountered by the physically disabled person.

1. There are situations that are new because the person has never experienced them. It is common knowledge that the child with a disability is frequently overprotected or rejected by his parents and others. He may be deprived of common cultural experiences that are open to the non-disabled. The cerebral palsied child or the blind child may infrequently or never have been exposed to the learning experiences of "going downtown with mother," "playing outside with the neighbors' children," "going to look at the fire engines with father," or "selecting and buying a toy from his own allowance." Experiential backgrounds in such cases are obviously limited. The capacity to cope successfully with a wide variety of life situations has not been permitted to develop. In technical terms, the psychological worlds of disabled children may be smaller and less well differentiated than the life spaces of physically normal children.

The practice of institutionalizing disabled children imposes some further restrictions upon the development of their ability to cope with the culture in which they live. Family living experiences, in all their warmth and all their opportunities for learning vicariously, may be drastically reduced. Practice in making decisions, even about such simple things as the time of arising or going to sleep, or when, where, and with whom to play, may be sacrificed to the need for running an institution efficiently. It is not surprising, therefore, that disabled children may reach adulthood without knowledge of the sequence of actions that will lead to the attainment of desired goals. To the degree that they do encounter such new, unstructured situations, they will behave as the situation demands. A schematic representation of the life space of disabled children and the life space of more favored children is shown in Figure 3.



SCHEMATIC DIAGRAM OF LIFE SPACE OF DISABLED CHILDREN SHOWING LARGE AREA OF NEW SITUATIONS AND POORLY DIFFERENTIATED OLD SITUATIONS



SCHEMATIC DIAGRAM OF LIFE SPACE OF NORMAL CHILDREN SHOWING SMALLER AREA OF NEW SITUATIONS AND HIGHLY DIFFERENTIATED OLD SITUATIONS

FIGURE 3. *Life space for disabled and physically normal children (see Figure 1 for key).*

It is evident that many situations that are new because they have not been experienced are unrelated to disability. Activities which lead to increasing the scope of behavioral possibilities, and to the structuring of these regions, therefore, will reduce the maladjusted behavior that is a function of newness.

2. Some situations are new because the person lacks a culturally required tool for behavior. He is partially or totally unable to structure the new situations.

It must be emphasized that psychological newness is not equivalent to geographical or physical newness. A motorist may never have driven to Alaska, but if he is able to read maps and follow route markers such a trip would not be psychologically new. The field is well structured. Similarly, if a person is confident of the technique for acknowledging introductions and the etiquette of behavior at a party, he may meet many new people in new surroundings, but since the sequence of steps to "making a good impression on others" is known, the situation is not psychologically new.

On the other hand, a disabled person may enter the same physical situation repeatedly and it may be new each time. The blind child, for example, may be in a new psychological situation every time he leaves his home to walk around the block. Ditches may have been dug, barriers erected, or there may be obstacles on the sidewalk in places that cannot be anticipated in advance. Each walk, each street to be crossed, may be a new adventure that requires great cautiousness. Similarly, the congenitally deaf child rarely knows in advance if he is going to be able to read the lips of the people who speak to him or if others will understand his laboriously acquired, but imperfect, speech. Each time he tries to speak or to lip-read, the situation is new if it cannot be structured. Knowledge from past experience that communication will be easy, of course, will reduce newness, but knowledge that communication will be difficult leaves the field unstructured.

Behavior in new situations, it will be recalled, is oriented to a goal. The forces toward the goal may arise from the motives of the child, from induced forces from without, or from a combination of both. The deaf child may wish to attend a regular school for normally hearing children or his mother may insist on this. In order to stay it is vital that he "make a good impression" on the teacher. One means to this goal is to have speech that can be understood and to be able to read the lips of others. If, however, the teacher and the other children only sometimes understand the deaf child and only sometimes does the deaf child understand others, each act of communication is psychologically new. The child can't plan consistently. He can never be sure of what to expect. New situations, therefore, are encountered with a frequency that is rarely, if ever, experienced by normally hearing persons. This is true for individuals with other kinds of disabilities, also.

This is inescapable: Every disabled person in our culture is going to be frustrated by the new psychological situations that arise because he lacks an appropriate tool for behavior. The deaf person does not live in an Indian culture where signs are generally understood and sometimes preferred for communication. The crippled person does not live in an environment where there are no steps to be climbed. They live in a culture where vocal communication and good locomotor ability are required. In some degree a disabled person is going to be unable to function in this culture as well as he would if he were not disabled. He is going to be exposed more frequently to new psychological situations that are directly related to the disability.

There are no magic solutions here, but the concept of new psychological situations points clearly to the relevant contexts that must be investigated:

(a) Many new situations can be avoided. The deaf person can associate only with individuals who know the language of signs. The blind person can sit at home and listen to the radio or the talking book. What are the positive and negative consequences of such behavior?

(b) Specific skills to reduce newness can be taught. What should a deaf child do if another person cannot understand his speech? What should a crippled child do if he wishes to enter a building but cannot open the door?

(c) It is probable that tolerance for frustration can be learned. Under what conditions is this feasible and desirable?

(d) The potency of some goals can be reduced. For which goals and under what conditions should the disabled person not strive?

3. Some situations are new because of the social stimulus value of the disabled person. Disability has many meanings to others. The disabled person often does not know when he enters a social situation whether he will be an object of curiosity, pitied, sympathized with, "helped," patronized, exhibited, praised for his spunk, avoided, or actively rejected. Only rarely will he be seen as a person who has psychological properties beyond the disability.

More frequently he will be identified with the disability and be reacted to in terms of whatever the disability means to the other person. These meanings are often extreme. They are rarely neutral.

Reduction of newness in this situation has two aspects:

(a) The education of the public as to the non-identity of physical characteristics and psychological characteristics.

This requires a change in well-developed stereotypes, and it may be difficult to accomplish. It may be difficult not only because able-bodied persons may have a "need" to perceive the physically disabled as "inferior" persons, but also because disability is not infrequently phenotypically related to other undesirable characteristics. For example, if large numbers of cerebral palsied persons, through no fault of their own, are poorly educated, or if an appreciable proportion of the cerebral palsied are also cortically brain damaged, it requires a drastic change in customary modes of thinking to reserve judgment about a particular, unknown individual who is seen to have cerebral palsy. This is a part of the general problem of prejudice that is experienced by other minority groups also. Enough progress has been made toward the solution of this problem to indicate that reduction of prejudice in the public is possible.[29] Change will not be easy, however, and it will not be accomplished quickly.

(b) The education of the disabled person in specific social skills which will facilitate his acceptance as a person.

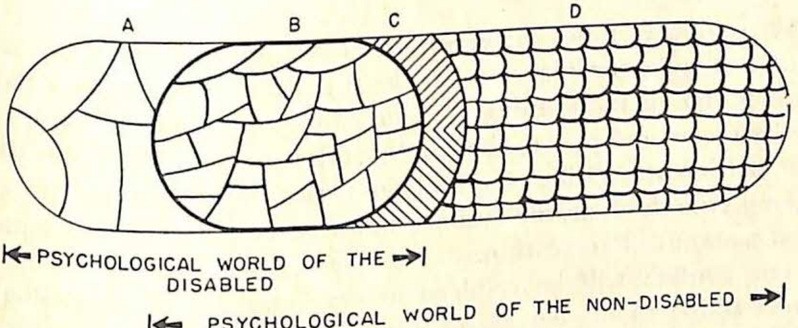
The physically normal person is often well-meaning, but he does not know how to behave toward another whom he perceives to be different. What sorts of behavior will reduce the newness of the situation both for the disabled and the non-disabled person?

This analysis indicates that the disabled person lives in a world that is frequently ambiguous both for himself and for others. He may frequently be placed in a strange and terrifying world in which he is expected to cope with new situations to which he has not previously been exposed; new situations in which his lack of a tool hampers adequate structuring; and new situations in which his social role is not clear.

If new psychological situations have the properties that we have derived, and if disabled persons are more frequently placed in new psychological situations, it is not surprising that, on the average, the disabled have been found to be less well adjusted than others. If the theory is true, however, the sequence of steps that will lead to good adjustment is equally clear.

## Overlapping Psychological Roles

The disabled person lives in two psychological worlds. Like everyone else, he lives in the world of the non-disabled majority. He also lives in the special psychological world that his disability creates for him. These worlds overlap, as shown in Figure 4.


A
B
C
D
PSYCHOLOGICAL WORLD OF THE DISABLED
PSYCHOLOGICAL WORLD OF THE NON-DISABLED

A Small and relatively undifferentiated area open only to the disabled
B Areas open to disabled and non-disabled
C Barrier region preventing locomotion of disabled person to region D
D Larger and well-differentiated region open to the non-disabled

FIGURE 4. *Overlapping psychological role situation.*

Many activities are common to both worlds, but some activities are engaged in primarily by disabled persons, while other activities are open only to the physically normal. The world of the physically normal is larger in the sense that it contains relatively more behavior possibilities and is amenable to greater differentiation. This dichotomy is not unique to disability, however. It can also be applied to any of the ways in which individuals differ. There is a psychological world of women and a psychological world of men; a world of Negroes and a world of whites; a world of Catholics and a world of those who have other beliefs; a world of the stupid and a world of those with greater intelligence; a world of the poor and a world of the rich.

Inasmuch as every person holds membership in many different groups, he must play multiple overlapping roles. This, in itself, is not a source of difficulty. For example, a young man can be simultaneously a son, a brother, a nephew, a fiancé, a college student, a major in English, a fraternity pledge, a Protestant, a football player, and a musician. Each of these roles, in some degree, requires different behavior than the others; but in general they are compatible with each other. The person is able to play the role that is required by the different constellations of psychological and social forces that act upon him.

### *Interfering Overlapping Roles*

At particular times, however, the different roles may be interfering. A man can play football in the afternoon and be a dance band leader in the evening; but he cannot play on the university football team and play in the band simultaneously. The latter situation will create conflict in the degree that the two roles are considered equally desirable and are not seen as different, but equally good avenues of recreation.

The conflict will be resolved as the interplay of psychological forces acting upon the person impels him in the direction of one goal or the other. These psychological forces may arise from the greater, intrinsic desirability of one goal; differences in social prestige attached to the different behaviors; the relative ability of the person to do one or the other well (for example, first trumpet player versus third-string tackle); the amount of time that is required for practice relative to the amount of time needed for study or the wish to have an active social life; the relative scholarships given to football players and trumpet players; plans for the future; and other factors. The important point here is that the person is amenable to the forces that arise from each situation. Both roles are open to him. He can play either or, within limits, change from one to the other.

### *Antagonistic Overlapping Roles*

Conflict will be intensified if the overlapping roles are antagonistic so that responding to one set of role-determiners automatically rules out the other. If a college student brings home his fiancée for a visit, his fiancée-oriented role as a mature person who plans soon to marry, have his own home and raise a family may interfere with his mother-oriented role of a dutiful son. Suppose one evening his doting mother, who still sees him as a child, says, "Junior, dear. It is raining outside. Be sure to put on your rubbers before you go out." How can the student respond to this childish role to which he has been assigned? If he behaves as a dutiful, docile son he loses status as a mature, capable person in the eyes of his fiancée and of himself. If he rejects his mother's well-meaning meddling in word or action, he loses his role as a dutiful son. He cannot behave both as a mature person and as an immature person, and whatever he does someone will be hurt. The situation will be resolved as before in terms of the relative attractiveness of the two roles and the potency of the psychological forces acting. College students understand why the mother's perception of her son as "my little baby" is unacceptable to him, and why it causes conflict. There are more, and more attractive, behavioral possibilities in the mature role. It is true that college students often are dependent upon their parents in some ways. However, they see no reason why financial dependency, for example, should "spread" to an assumed general immaturity of such degree that they do not know when to come in out of the rain. This sort of role pervasiveness is considered unnecessary and unacceptable. We shall see that this is a serious problem in disability also.

## *Overlapping Excluding Roles*

The greatest conflict occurs when the person rejects the roles that are open to him and strives for a role that he cannot attain or at least that is relatively inaccessible to him. We shall call these "overlapping excluding roles." It does not matter greatly at the momentary point of conflict whether the barrier between the person and a desired role is an ability barrier or a social barrier.

The psychological world of the homely girl, for example, in contrast to the world of the beautiful girl, can be ordered to Figure 4. For this variable of beauty, it is evident to any observer that a beautiful girl may behave in ways that are impossible for others. Other things being equal, the beautiful girl will be sought out more frequently. She can be highly selective in whom she will date and where she will go. Even in the classroom, as the author knows;

from experience, beauty is not unrelated to academic grading. Prestige, status and privileged behavioral possibilities, not open to homely girls, are open to college "queens." The gains are not only immediate but extend far into the future. Favorable marriages and great social mobility as a function of beauty are not unknown.

These are no trivial or insignificant goals for many college women. It is not surprising that many college girls when they perceive the great value placed on beauty and the attractive behavioral possibilities it creates, desire this role for themselves. It is possible, within limits, for a homely girl by reducing weight, adopting culturally approved forms of dress and cosmetic enhancement to make the most of what she's got; but only rarely is it possible for a homely girl to become beautiful or to play the role of a beauty.

Many girls who are not endowed with great beauty handle this problem very well. They do not place a high value on the role from which they are excluded. If the beauty behaves as if "beauty is as beauty does," they reply, "Beauty is only skin deep. Other things are more important than how you look."

Some homely girls, however, because of the psychological forces acting upon them, are unable to relinquish the goal of beauty. Perhaps beauty is important to family and friends, and the girl is never permitted to forget that she is not beautiful. She may be referred to as ugly and treated with the rejection and disdain that are reserved for those who lack important attributes. Inasmuch as everyone tends to accept the judgments of important "others," it is extremely difficult to avoid internalizing feelings of inferiority and unworthiness.

For some individuals, beauty is not an end in itself but a means to a goal, so that the psychological forces arise, in part, from within. A girl who wishes to be a movie heroine may perceive that she lacks the necessary pulchritude for this role, but be unable to give it up. She may try all sorts of tricks to attain beauty, but she may also make herself perfectly miserable by sitting in front of a mirror and examining herself: "If only my nose wasn't quite so long; if my ears were smaller; if my hair wasn't so dry and stringy; if my eyelashes were longer – then the satisfactions that are open to beautiful women would be open to me too. I could be a movie star. I could meet and maybe marry a wealthy and attractive man. I could have fame and other good things."

No doubt, in some degree, this kind of behavior occurs in all psychologically adolescent women in our culture, for there are undoubtedly real advantages in being able to play the role of beauty. If the goal is inaccessible or unattainable, however, it does no good to continue to place a high value on it simply because one feels beautiful inside. Most mature individuals, both male and female, appear to place less value on physical beauty than adolescents do. It is nice to have, but its absence or relative lack does not make a person less worthy nor is it decisive for the judgment of the person.

Similarly, a goal may be unattainable because the path to the goal is blocked by a social barrier. A college girl's highest aspiration may be to pledge Alpha Alpha Alpha sorority. Perhaps, however, she once wore bobby socks on campus or committed the unpardonable faux pas of wearing a slip under an evening gown. Perhaps her family is of the "wrong" race, religion, or economic status. Otherwise she may be beautiful, talented, and a BWOC, but she is blackballed from the sorority. She is now just as effectively prevented from playing the role of "member of Alpha Alpha Alpha" with all its advantages as she would be if she lacked an intrinsic ability. It doesn't matter from the standpoint of behavioral consequences whether the social prejudice is unjust. If the social barrier is strong, only rarely is it possible for the determined person to break through it. Prejudice is usually not amenable to reason nor will it be decreased by "good" behavior on the part of the person. If the person is unable to relinquish a strong emotional attachment to an unattainable goal, the resulting behavior is clearly predictable.

An implicit understanding of this principle is perhaps one reason why it is a normal human tendency to stop comparing oneself with others who are different. The average college student compares his test papers not with Phi Beta Kappas but with others on his own level. The athlete who plays both football and basketball but is able to make only the football team not only plays more football and less basketball, but he comes to consider football a "better" game. The path to mental health is traveled when a person places his highest values on what he has got or can attain and places lower, neutral values or non-comparative values on what he hasn't got or cannot attain.

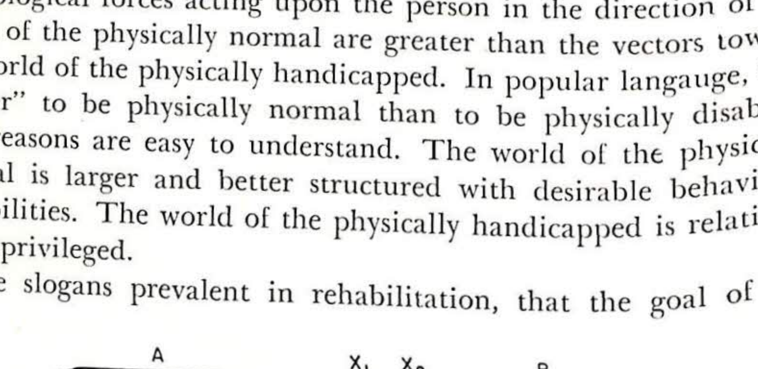
We are now in a position to make an additional if-then-always statement: If a person, because of his own forces or induced forces, is impelled to strive for a goal that is unattainable, because of ability or social barriers, the constellation of behavior commonly referred to as psychological maladjustment will occur. The greater the vectors towards the goal and the stronger the barriers which surround the goal, the greater will be the behavioral disruption.

### *Application to the Physically Disabled*

Individuals who have physical disabilities also have other roles. Like others, they encounter their fair share of overlapping compatible, overlapping interfering, and overlapping antagonistic roles. They are almost unique, however, in being exposed more frequently, sometimes for a lifetime, to overlapping excluding roles. If this is true, it is not surprising that according to available evidence, disabled persons tend to be maladjusted more frequently than others.

The excluding overlap occurs between the role of the disabled person and the role of the physically normal person. The dynamics of the situation are shown in Figure 5. It will be seen that the psychological forces acting upon the person in the direction of the world of the physically normal are greater than the vectors toward the world of the physically handicapped. In popular langauge, it is "better" to be physically normal than to be physically disabled. The reasons are easy to understand. The world of the physically normal is larger and better structured with desirable behavioral possibilities. The world of the physically handicapped is relatively underprivileged.

The slogans prevalent in rehabilitation, that the goal of the



A Situation of the disabled person
B Situation of the non-disabled person
$X_1$ Ability barrier
$X_2$ Social barrier

fa,b Force in A toward B
fa-a Force in A away from A
fx,a Force in X toward A
fx-x Force in X away from X

FIGURE 5. *Overlapping role situation in disability.*

handicapped is to "be normal, achieve normality, become as normal as possible, be treated like normal, do the same thing as normal children and in the same way," are not simply figures of speech. They reflect the reality of underlying psychological and social forces. However, the role of the disabled person excludes the role of the non-disabled person in every situation where the disability makes a difference. The disabled person is separated from some desirable normal goals by a strong barrier. This barrier is constructed of ability limitations and social limitations, and both are relatively impermeable. It is dynamically clear, therefore, that disabled persons are often placed in a position where they are impelled to strive for relatively inaccessible or unattainable goals. When the barrier is impermeable and the goal unattainable, the behavior predicted for overlapping excluding roles will occur. Living on the barrier between overlapping excluding roles may be considered a form of psychological suicide.

If it is undesirable for disabled persons to be maladjusted, another solution has become clear: Reduce the frequency of overlapping excluding role situations. A few examples of specific situations may clarify this abstract formulation.

Assume that a person who is blind wishes to be treated like a regular person, just like anyone else. His hostess at a party takes him at his word and asks him to pour the cocktails. How should he behave? Theoretically he has a choice. He can pour like a blind man or he can try to pour like a seeing person. If he pours like a blind man, he will hook a finger over the lip of the glass. When the liquid reaches his fingertip, it is full. Many people, however, are somewhat squeamish about having other people's fingers in their drinks. If he poured in this fashion he would call down upon himself the intense hostility of the assembled group. Perhaps he would hear derogatory comments about blind people being invited to parties. However, he has already rejected the role of the blind person and decided to try to play the role of a normally seeing person. He must, therefore, accept the assignment and attempt to pour drinks like a normally seeing person. He cannot bring out his blindness as an "excuse." He is not a seeing person, however. He is blind. In this situation he cannot behave like a normally seeing person, for he does not have the necessary visual tool. The best he can do is to depend on change in weight or change in sound to estimate when a glass is full. This is both a more difficult and a less effective procedure than visual inspection. Some glasses may be correctly filled but it would not be surprising if some glasses were filled to overflowing and some were left only partially full. He may go through the motions of behaving like a seeing person, but he cannot actually play the role. He knows, and all who see him will know, that he is blind.

The significance of this example is that similar situations occur with great frequency in the life of every disabled person who rejects the behavioral possibilities that are open to him as a disabled person and strives instead to live a role that is not possible. To the degree that the person's life situation requires "normal" behavior, and to the degree that the person places a high value on entering regions that are partially or totally closed to him, he will be maladjusted. Moreover, the denial of the disabled role will not protect him from the social discrimination of those who perceive that he is disabled. He will be denied acceptance and entrance into privileged situations by those who respond to his disability no less frequently than disabled persons who accept the disabled role when the disabled role is appropriate.

It is easy to contend that the disabled person must "accept" his disability, but this is only a meaningless and contradictory platitude if the underlying situation of disability is not understood. If "acceptance" means that the person must be content with an inferior position that requires him to acknowledge his inferiority as a person and permits him to strive only for intrinsically less satisfying goals, "acceptance" is difficult. If there is no assurance that society will "accept" the disability also and not penalize the person for it, it is unrealistic to endow "acceptance" with the qualities of a panacea.

## *The Problem of Acceptance*

In almost every other overlapping excluding role situation, there are some who will contend sincerely, and not as a sour-grapes mechanism, that the possible role is just as good or better than the excluded role. It is just as good to be a woman as a man; it is just as good to be a Negro as to be white; it is just as good to be Catholic as to hold other faiths; it is just as good to be an independent as it is to be a fraternity man. Many more people believe that it is not good to be too smart, too rich, too beautiful or too successful.

Disability is unique in that almost no one believes it is just as good or better, in any sense, to be disabled than to be non-disabled. No one believes that it is not good to be too healthy. This means that some of the strongest forces in our society act upon disabled people to deny their disabilities and impel them to strive to be non-disabled. We do not wish the disabled to "accept" their disability. On the contrary, we insist that they deny it.

Consider the case of a Negro who feels that many of the most valued goals in our culture are reserved for whites. He aspires, therefore, to the role and position of a white man. How would we evaluate such a person if he exposed himself to X-rays and bought quantities of drugs to lighten his skin, pomades to straighten his hair, and sought plastic surgery to reduce the width of his nose? Every psychologist would say that such a person is seriously maladjusted. His wish to be white in a culture that rewards white skin and penalizes black skin is understandable, but mental health lies only in the direction of accepting himself as a Negro and taking pride in the group to which he belongs.

Consider also the case of a Jew named Goldstein who believes that, like members of numerous other minority groups, he is excluded from highly desirable goals. He suddenly changes his name to Brown and joins the Episcopal Church. Most would agree that he cannot deny himself. Like the blind man pouring drinks, he is only going through the motions. He cannot really be Brown, the Episcopalian. To himself and to his friends he is still Goldstein underneath. To attempt to change in this way is prima facie evidence of emotional disturbance. It would be better to accept himself and take pride in the group to which he belongs.

Consider now the treatment and evaluation of the disabled. A child is deaf. On the one hand we say, verbally, accept the deafness. On the other hand, however, we give him a hearing aid, and compel him to spend most of his waking hours in listening to sounds that he perceives so faintly and distortedly that he cannot interpret them; we urge him to attempt to say sounds that he himself cannot hear or monitor for himself; and we drill him in assigning meaning to the fleeting movements of the lips that are only by-products of the vocal noises of others. In some cases this process is crowned with striking success. Some degree of adaptation occurs in many. For all deaf children, however, we make it clear that the child is not to accept his deafness. On the contrary, he is to exert himself to the utmost to be not deaf. He is not to use the signs which are easier for him. He is to speak, even though his speech will never be as good or as "normal" as the speech of a normally hearing person. He must continue to strive with all his energy for goals that, at best, are only partially attainable. In addition, his adjustment is evaluated, in part, according to the degree to which he associates with normally hearing people and avoids other deaf persons. The inferiority of "the deaf" is made clear to him, for he is encouraged to assert his membership in every other group to which he belongs, but he is not to take pride or seek satisfactions in the psychological world of the deaf.

Deaf children learn quickly that it is "better" to be a hearing person than a deaf person. In the most "progressive" schools where deaf teachers of the deaf are never employed "because they can't teach speech," the children see that the important people, the teachers, the supervisors, and the technicians are hearing people; the janitors, the junior cooks and the servants are deaf people. Little children who wear individual hearing aids point to them pridefully and indicate, "I hear." Others point to their own empty ears and shrug their dismay.

Similarly, a child has cerebral palsy and doesn't walk. Of course, it is necessary to accept the disability; but, of course, it is equally necessary for the child to struggle with all sorts of therapies to try to overcome at least some aspects of the disability.

This is not an argument for or against particular methods of education, but an attempt to attain clarity. It may be socially desirable that deaf, blind and crippled children behave, as far as possible, as not-deaf, not-blind and not-crippled. It may be necessary for them to live on the barrier between overlapping excluding roles. If this is so, however, it is a great advantage to understand clearly the structure of the situation. We cannot justly create situations which lead to maladjustment on one hand and belabor the disabled for their maladjustment on the other.

It is conceivable that there are advantages and values in maladjustment. George Matthew Adams,[30] the newspaper columnist, who often reflects popular feeling recently advised his readers, "Be anxious." Everything worthwhile has been accomplished by people who were anxious to "get ahead."

In a society that worships achievement and "success," perhaps anxiety and insecurity are a small price for progress. It is certain that among the disabled, the highest accolades have gone to those who did not accept, but denied and achieved "in spite of." It is equally certain, however, that they paid for this recognition and praise with anxiety, conflict, and frustration. The former undoubtedly are valuable, but the latter are not the fruits of adjustment. There is nothing to be gained by confusing accomplishment with adjustment. Fortunately, we need not be caught on either horn of the dilemma. If the theory of disability presented in this chapter is true, solutions for some of the critical problems of disability are implicit within it. The application of the theory to a particular disability and to individual cases is described in Chapter 3.[31]

## FOOTNOTES FOR CHAPTER 1

[1] Close association, over a period of years, with my colleagues Roger G. Barker, Tamara Dembo, and Beatrice A. Wright have undoubtedly led me to assimilate many of their ideas. Their thinking has been so cogent and has become so much a part of me that it is now often difficult to separate the strands of their ideas from my own. The best of what may be of value in this chapter undoubtedly is of their making. The errors, of course, are strictly my own.

[2] R. G. Barker, B. A. Wright, L. Meyerson, and M. R. Gonick, *Adjustment to Physical Handicap and Illness: A survey of the social psychology of physique and disability* (New York: Social Science Research Council, 1953).

[3] E. B. Gowin, *The Executive and His Control of Men* (New York: The Macmillan Company, 1927).

[4] F. B. Blair, "Relations Between the Average Amount of Insurance per Policy and the Height and the Weight of the Insured," *The Record* (American Institute of Actuaries), 29 (1940), 211-223.

[5] D. G. Paterson, *Physique and Intellect* (New York: Appleton Century, 1930).

[6] O. Klineberg, S. E. Asch and H. Block, "An Experimental Study of Constitutional Types," *Genetic Psychology Monographs*, 16 (1934), 145–221.

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# 2.

# *Psychological Assessment of Exceptional Children and Youth*

The purposes of this chapter are to review briefly the major assumptions that underlie psychological testing and to indicate major measurement problems regarding these assumptions with respect to exceptional children and youth. Results actually obtained in testing in the different areas of exceptionality will be presented only for the purpose of illustrating assessment problems in this field, since the major psychological findings are incorporated in the chapters on the several kinds of exceptionality. Only a few of the hundreds of devices and techniques will be mentioned, and only for the purpose of illustrating the problems or attempts at solution of some of the problems which are indicated.

Our discussion of examination procedures and problems will be pointed towards the accomplishment of a maximally meaningful psychological assessment of exceptional children and youth. Yet, to attain this, we would need the contributions of a full and competent staff. Case studies, social studies, the reports of medical diagnostic and treatment specialists, and full educational histories would be required, and we should need to "staff" such children in the light of all such information before we could expect to have complete bases for sound and complete psychological assessments of the children. This is beyond the scope of this chapter. We shall limit our concern to problems involved in the obtaining and integrating of information obtained within the framework of the psychological or psychoeducational clinic. Further, we shall confine ourselves to a consideration of the nature of the content of psychological reports rather than the reports themselves.

If this chapter identifies more problems than it settles, it is in part a result of the status of examination procedures in this field, and in part a result of the author's desire to have this kind of educational impact upon the student.

The words "testing" and "assessing" definitely mean different activities. The term "testing" will be used to denote the exposure of a client to any given device, whether group or individual, essentially for the purpose of obtaining a quantitative characterization of one or more traits of that client. "Assessing," on the other hand, includes both this quantitative depiction of the client, and the qualitative and integrated characterization of the client as a dynamic, ongoing total organism functioning in a social setting. Without resorting to an illustrative full-length report of the assessment of a child, the following excerpted statements may suggest more clearly the contrast between qualitative and quantitative characterizations:

(a) He was 5 feet 4 inches tall [quantitative], but he didn't really stand up straight while he was being measured [qualitative].

(b) She earned an I.Q. of 67 on this test [quantitative], but she didn't seem to apply herself in the examination situation [qualitative].

(c) It is interesting to note that he consistently named differences but did not name similarities [qualitative], even though he did fail this part of the test [quantitative].

(d) Her constantly asking the examiner if her responses were correct and her frequent biting of her fingernails during the examination session suggested feelings of insecurity [qualitative]. This behavior, and some others like it, make me wonder if the I.Q. of 83 which she got on the Binet [quantitative] gives us a true picture of her rate of mental development.

There tends to be relatively less of the qualitative aspect in testing than there is of the quantitative aspect in assessing. Even though much of the following discussion will deal with the testing approach, the greater significance of the use of the assessment approach will, it is hoped, become apparent.

Even though this book is concerned with exceptional children and youth up to the chronological age of 21, most of the discussion and the research cited will pertain to exceptional children from the high school level downward. The term "exceptional children," as used in this chapter, will signify either this more limited age range or a specific part of it.

It is particularly important in this chapter to bear in mind the fact that the terminology used to denote different kinds of exceptional children is confusing. In the first place, the term "physically handicapped" will be used here to refer to a group of exceptionalities – the orthopedic, the sensorily handicapped, the physically delicate, the brain-injured, the epileptic, and the like. The brain-injured will include both the cerebral palsied and those who have, or are believed to have higher level neural impairment not reflected in motor dysfunction. The deaf will be regarded as a part of the acoustically handicapped, just as the blind will be regarded as falling in the category of the visually handicapped. The term "mentally retarded" will be used, albeit illogically, to refer to those exceptional children whose intellectual retardation is not so severe as to warrant their falling in the range of mental deficiency nor so slight as to warrant their being regarded as "slow learners." The "mentally retarded," then, will be thought of, I.Q.-wise, as having intelligence quotients roughly comparable to Revised Stanford-Binet I. Q's falling between approximately 50 and 75 or 80.

In the second place, it certainly is not safe to assume that the different types of exceptionalities are "pure" types. A child with a speech impairment, for instance, also may have a hearing loss, or some higher central nervous system involvement, or he may be socially and emotionally maladjusted. A visually impaired child may be mentally retarded or he may have a speech impairment, or he may also be brain-injured. However, our discussion will be restricted intentionally either to such "simple" types of exceptionality or to types of exceptionality in which the designated conditions are regarded as the *primary*, but not the sole, bases upon which the educational and social needs of such children are being met, or are being studied. The psychological examination and assessment of children of any multiple-exception type involve a compounding of the problems peculiar to each of the involved areas of exceptionality, as in cases such as the mentally superior, severely involved athetoid, the deaf-blind, the blind-cerebral palsied, or the speech-impaired, emotionally maladjusted.

## ASSUMPTIONS UNDERLYING PSYCHOLOGICAL TESTING

In considering the following assumptions, it is quike likely that the student will think most often in terms of the measurement of the intelligence of a child. The assumptions, however, also underlie the processes of determining such things as the nature of the child's emotionality, his educational achievement, his vocational aptitudes, his motor skills, his height, his weight, or even his temperature.

In this connection, let us use the word "testing" to mean the process of using any device (test, inventory, scale, thermometer) in the examination of an individual. More explicitly, *testing is the controlled observation of the behavior of an individual to whom stimuli of known characteristics are applied in a known manner.* It would follow, then, that if the same stimulus (from the observer's point of view) were applied in the same manner (from the observer's point of view), the differences in the responses of the individuals so stimulated would be a function of differences within the individuals. The following assumptions inhere in this process:

1. It is assumed that the observer is adequately trained and skilled in the procedures of getting the subject to respond effectively (rapport), of applying the stimuli (test or test items), of recording the responses of the subject, and of evaluating (scoring) those responses according to the instructions for the standardized use of the device. In the majority of cases, the standardized procedures are adhered to rigidly. Later, we shall consider certain studied departures from these procedures in connection with the examination of certain kinds of exceptional children.

2. It is assumed that the sampling of behavior in the test situation is both adequate in amount and representative in area. The safest way to judge a basket of strawberries would be to examine each strawberry and then base one's judgment on the total sample. But people don't do that. Some look only at the top, and others tip up the basket and look at a few more. In the area of human behavior, we can't sample all of it, but by acceptable statistical methods we can determine how small a sample we can safely take. Similarly, we can't sample every different area of behavior, but we can and do sample those which, statistically, have been found to be of adequate reliability and validity.

3. It is assumed that the subjects being tested have been exposed to comparable, but not necessarily identical, acculturation. Even ignoring the language problem, a personality test or inventory, or a vocational aptitude test developed for use in the United States could well be of little or no value if used in Thailand or on the Zulus. Certain other tests are nearly as inappropriate when used on certain types of the physically handicapped whose worlds have been seriously circumscribed.[1] Less often, but equally important, certain children may give evidence of having been "hothoused," given rather intensive cultural training consciously or unconsciously, by adults who, quite understandably, want their children to do well.

4. It is assumed that error will be present in the measurement of human behavior. Error is present in any measurement, whether it be in the distance to Jupiter, in the weight on the bathroom scales, in the length of a table, or in vocational aptitude, intelligence, or emotional adjustment. Statistical procedures enable us both to ascertain the magnitude of error in any given kind of measurement and to allow for that error in connection with any given measurement. We do not think of a child as having earned an absolute or infallible I.Q. on any given test, but as having an I.Q. on that test falling between one point some 5, 10, or more points above the obtained one and another point some 5, 10, or more points below it.

5. It is assumed that only *present behavior is observed*. Behavior on any given test is as of that particular time on that particular test. It is a sample within a relatively long period of time. It must be remembered that a child is observed as reacting in this way (or these ways) to this stimulation (test) at the time and under the conditions of this test. But this condition does not make futile or meaningless the process of testing or examining because of the next assumption, plus certain kinds of statistical insurance that has been or can be taken out with respect to the validity of the behavior sampled.

6. It is assumed that *future behavior* of the child *is inferred*. The statement "Every diagnosis is a prognosis" illustrates the close association between the process of measuring present behavior and the act of using the results of that measurement in endeavoring to predict how the subject will act, regarding the particular areas of behavior observed, at some later time. The man is significantly

overweight now; therefore he will be a less desirable insurance risk. The woman just passed her driver's examination; therefore, the state issues her a permit for future driving. The child does very well on an intelligence test, and someone says he will be good college material. Another child does quite poorly in an examination situation, and is therefore regarded as unlikely to respond effectively in future training situations. Or, even, a child who actually has performed ineffectively in an examination situation is judged (inferred) to be actually capable of profiting from a treatment or training program, because certain conditions are believed to have impaired or distorted his present performance.

This two-step process of measuring and inferring is both reasonable and dangerous. On the one hand, it is the only thing we can do. A child performs normally in the first and second grades. That is to say, he is promoted to the next higher grade in the average amount of time. Therefore we make the guess that he will perform normally in the next higher grade, assuming no intervening distraction. Similarly, he answers correctly the same number of test items as did the average third grader; therefore, we *assume* that he is likely, in other related situations, to behave the way other third graders have behaved. On the other hand, such predictions have three important sources of potential error. Predictions may be faultily based either upon too limited a sample of behavior or upon a sample of behavior that bears no sound relationship to the predicted behavior. A fifteen-minute test involving the manipulation of some blocks can well provide a precarious basis upon which to predict that a child can acquire verbal symbols and use them meaningfully. Even a good sample of behavior which would serve satisfactorily for predicting behavior within the next year or so can lose much of its value for the prediction of behavior five to ten years later. It must be remembered, too, that these predictions are not statements of certainty, but are actually probability statements. They are made in the sense of "the chances are . . . ."

Measurement in the areas of intelligence and emotionality quite commonly involves an additional inferring process. In the case of intelligence, some kind of achievement often is measured and then an inference is drawn concerning the capacity which made such achievement possible. In projective testing, for instance, we see inferences drawn with respect to basic personality structures from what often appears to the clinically untrained to be irrelevant behavior samples.

Thus we see that inferences are drawn from a present sample of behavior both with respect to what later behavior will be and with respect to what caused the behavior that was observed in the process of examination or measurement. It is particularly important to recognize that the results obtained in testing or assessing are used as the basis for inferences which have varying degrees of predictive strength. Especially is this realization necessary in dealing with exceptional children since they are, by the varying natures and complexities of their exceptionalities, the ones for whom many of our testing devices and procedures may be at least in part inappropriate.

## *The Meaning of Norms*

Individual test performances take on meaning when they are thrown into social perspective by means of norms. Measurements which are recorded have to be compared in order to give them meaning. For instance, we say Mary is 51 inches tall which, in and of itself, is meaningless. It takes on meaning when we are able to say that Mary is taller than her twin brother, or is as tall as the average nine-year-old girl, or is taller than 80 per cent of her fellow seven-year-olds. Knowing how average seven-year-olds, average eight-year-olds, and average nine-year-olds learn, we have a somewhat fuller understanding of Jim's probable ease of learning when we know his mental age to be seven years six months. This was made possible by the fact that the person standardizing the test which was used on Jim had ascertained how a *typical* population at each age level in question had performed on that test. It is of particular importance here to note that a studiously typical population is sought for the standardization of the bulk of the measuring devices used. Mechanically using such devices on certain types of exceptional children, therefore, may be completely without justification. To make modifications of such devices, by using only parts of the original standardized device, to modify slightly the material or procedure for even parts of the original standardized device, or to try to combine usable parts of differently standardized devices, each necessitates the carrying out of sound research to show that such tamperings do not invalidate the process of comparing the findings with the original norms.

Obviously, the significance attached to this varies with the kind of exceptional child being examined. If the child is exceptional *only* by virtue of some deviation in intelligence, devices standardized to measure this kind of behavior are applicable as standardized. On the other hand, tests involving speech to any significant extent would yield ambiguous results if used on children with serious motor involvements affecting speech. Certain manipulation tests, used in a standardized, timed manner on certain kinds of motor-handicapped children, would yield completely misleading results. When tests which include a considerable sample of acculturation are used on children who have not had a broadly "normal" exposure to that culture, it is inevitable that questions will be raised as to the validity of the results obtained.

Mainly in areas of exceptionality other than those of the intellectual deviant there is a very real question as to the extent to which the test performances of the severely orthopedically handicapped, or the sensorily handicapped, or of those with marked speech impairments, or, even, of those who are emotionally maladjusted should be depicted in terms of scores which have been obtained in the "normal" standardizations and use of the device. If only devices standardized on a random sampling of a "normal" population are used on the exceptional, still excluding from our consideration the intellectual deviant, should the performances of the exceptional be stated in terms of the "normal"? If so, the exceptional stands to suffer by such a comparison since many of the conditions which constitute exceptionality are recognized clinically as conditions which tend to impair rather than to enhance an individual's performance. If, on the other hand, devices are standardized, for instance, on only the specific populations of the physically handicapped, there remains a problem of giving a meaningful social perspective to the performances of such persons on such devices. If, further, normally standardized devices are modified or "adapted" to the conditions of the exceptional, the meaning of the results so obtained, when compared with the norms for the original unmodified or unadapted device, becomes at best ambiguous.

Assuming the appropriateness of norms for the different types of exceptionality, how should the performance of a given exceptional child on a particular device be characterized or interpreted? Should this child be described as being in the bottom one per cent of the general population on a given trait, or should he be regarded as doing very well in view of the conditions operating in his case? On the one hand, his scholastic standing may be far below the grade level at which some persons might expect him to be working. On the other hand, he may be doing as well as he is capable of doing. The mental retardate, for instance, may be succeeding in school as well as can be expected on the basis of his mental capacity, but he still may be doing so poorly that he cannot be expected to succeed as a clerk in a small grocery where he would be required to make out slips, read invoices to check incoming goods, or even read names and addresses when making deliveries. The problem here is not an out-and-out either/or choice; it is, rather, one of deciding which to use when. For purposes of educational planning and motivation, we consider the child's performance in terms of *his* potential. For purposes of vocational planning, and for certain research purposes, however, his status must be conceived of in terms of his skills or lack of them, in comparison with comparable skills in others. The assumption of a constant frame of reference, or a failure to distinguish clearly between different frames of reference, often causes considerable confusion in the assessment of exceptional children and youth.

We have seen, thus far (1) that when any client is tested or assessed he is, in effect, being observed under conditions that are controlled as much as possible; (2) that certain concepts and assumptions are involved in any testing or assessing, whether the client be average or exceptional; (3) that special problems are encountered in testing or assessing the exceptional — whether it be attempted by the mechanical use on the exceptional of a device developed for and standardized upon the non-exceptional, or whether it be attempted by means of a device standardized upon a given kind of exceptional children, or whether one tries to take the short-cut of "adapting" conventional devices for use with the exceptional; and (4) that while these problems vary somewhat from one kind of exceptionality to another, the problems are common to various areas of measurement. Certainly, the more one is sensitive to the problems which have been indicated, the more one is hesitant to accept uncritically I.Q.'s reported on various kinds of the physically handicapped, especially when there lurk in the background implicit assumptions that I.Q.'s (or other quantifications) are comparable in a one-to-one relationship from one device to another, or from one handicapped group to another, or from one handicapped group to a non-handicapped group.

As has been indicated, practically all of the devices which have been used in trying to ascertain the psychological picture of the physically handicapped have been developed on essentially "normal" populations. This is understandable in view of the fact that, in most cases, such devices were the only ones available and because it was desired to depict or describe the handicapped in terms of the non-handicapped population with whom they had to live and compete. Take, for instance, the reporting of mental, or even achievement, test results on the deaf in terms of how they performed on devices which had been standardized on essentially non-deaf subjects. Consider likewise the dangers of this type of characterization of the performances of the severely orthopedically handicapped. However, no research evidence has been presented which demonstrates that the basic assumption regarding comparable acculturation has been satisfied.

## *Test Adaptations*

The point has been made that any test must be thought of as a controlled pattern of stimuli which is presented to a client in a uniform manner in order that the client's responses to those stimuli can be recorded and measured. Whether or not the original standardized pattern of items can be altered without lowering the validity of the total performance is an important question since, in examining children who are emotionally disturbed, or even seriously ill at ease in the examination situation, some psychologists prefer to start their testing with performance or non-verbal items rather than with the verbal items with which the test was started when it was standardized. That such an approach tends more quickly to establish rapport with such subjects is generally accepted among clinicians. Fortunately, some research on the effects of so altering the stimulus pattern of the test indicates that the validity of the total test response is not impaired by this particular type of modification of the test procedure.[2]

It is a not infrequent practice among those making psychological examinations of the motor-handicapped to make other "adaptations" of tests to their clients by omitting certain items on which the examiner feels certain the client cannot perform. Certain vocabulary items are omitted if speech is severely impaired, and manipulation and drawing items are omitted if the client's hands are severely involved. This departure from the standardized stimulus concept of a test both involves a decrease in the sample of the client's behavior and, when "corrections" are made for the whole test on the basis of the parts of the test which were used, usually implies that each item in the test has equivalent measurement value.

Table I depicts the problem in a considerably oversimplified form. Let us assume that in the test in question ten kinds or "areas" of behavior are sampled, such as vocabulary, bead stringing, maze tracing, picture identification, identification of similarities, and so on. Let us assume, also, that four nine-year-olds are examined by means of this device. Child 1 is examined in all ten areas and earns an I.Q. of 150, which becomes part of the basis upon which he may be characterized as mentally superior. Child 2, tested in the same ten areas, performs in a manner that suggests that he may be a candidate for a class for the mentally retarded. Child 3, who has a gross speech impairment, is examined in only eight of the ten areas, and he earns an I.Q. on that test of 65, numerically comparable to the one earned by Child 2. In like manner, Child 4, a manually impaired child, is examined by the "same" test which has been "adapted" to his conditiion, and he is found to have an I.Q. numerically comparable to those of Child 2 and Child 3. We are justified in assuming psychological comparability among these total test performances only insofar as it has been shown by research that

TABLE I

HYPOTHETICAL TEST BEHAVIOR SAMPLING OF FOUR CHILDREN

| | *"Areas" of behavior sampled in the total test* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Child* | *I* | *II* | *III* | *IV* | *V* | *VI* | *VII* | *VIII* | *IX* | *X* | *I.Q.* |
| 1 | x | x | x | x | x | x | x | x | x | x | 150 |
| 2 | x | x | x | x | x | x | x | x | x | x | 65 |
| 3 | x | x | x | | x | x | | x | x | x | 65 |
| 4 | x | x | | x | x | | x | x | x | x | 65 |

behavior samplings in areas III, IV, VI, and VII are of equal psychological value, among themselves, and also as related to the other areas of behavior sampled. In spite of the fact that it is yet to be shown by research that these conditions have been met, there have been published in the field of the exceptional, numerous studies purporting to show comparisons among exceptionalities, between certain exceptionalities and the non-handicapped, and within certain areas of exceptionality.

Although this problem is more clearly recognizable in connection with attempts to measure "intelligence," it exists in a slightly modified form with respect to attempts to measure emotional adjustment, vocational aptitudes, and educational achievement. Whereas it is present in such attempts at measurement with the acoustically impaired and the speech-impaired, it is more commonly, and perhaps more dangerously, encountered with the cerebral palsied.

Illustrative of ambiguous, if not misleading, data presented about the cerebral palsied are the following.[3] On the basis of the following I.Q. data, the author of the article stated that 40 per cent of his 300 cases "must be classed as aments":

| *I.Q.* | *Per Cent* |
|---|---|
| Below 25 | 7 |
| 25– 50 | 16 |
| 51– 70 | 15 |
| 71– 80 | 13 |
| 81– 90 | 17 |
| 91–110 | 18 |
| 111–130 | 4 |
| 131–150 | .3 |
| Undetermined | 10 |

| *Age* | *Per Cent* |
|---|---|
| 1– 5 years | 40 |
| 6–10 | 31 |
| 11–15 | 20 |
| Over 15 | 9 |

| *Speech:* | | |
|---|---|---|
| | Poor | 61 |
| | Fair | 28 |
| | Good | 11 |

From a psychological point of view, one immediately asks questions such as these about such data: By means of what test or tests were these I.Q.'s obtained? Since the I.Q.'s were all thrown together in the same tabulation, is it not assumed that these I.Q.'s have both numerical and psychological comparability? Were the tests "adapted" to the subjects? If so, do the results from such "adaptations" have numerical and psychological comparability? In view of the fact that 40 per cent of these cerebral palsied clients were less than six years of age, how psychologically meaningful are such I.Q.'s? Since we know that the younger the child the greater the size of error in the psychological measurement of him, how much additional possible distortion resulted due to the crippling condition of these children? Since 61 per cent were reported as having "poor" (presumably including "no") speech, to what extent are these data further clouded by that factor? What skill did this psychologist possess that enabled him to determine I.Q.'s in all but 10 per cent of his 300 cerebral palsied clients, 40 per cent of whom were under six years of age, and 61 per cent of whom had poor speech? No small amount of curiosity would be evidenced as to the extent to which these intelligence quotient data would be affected by hearing impairments in these subjects. Questions such as these can well be raised with respect to a number of other reports on the intelligence quotients of the cerebral palsied and certain other orthopedically handicapped children.

When one turns to the severely acoustically handicapped – particularly those born with this handicap or having it from an early age[4]– some of the same questions arise, and new ones occur due to the fact that the psychological conditions attending this latter group differ significantly from those attending, say, the cerebral palsied who have normal hearing acuity. We shall confine our consideration here to problems attending the attempts at the measurement of general mental capacity, but recognize that measurement of emotional adjustment, vocational aptitude, and educational achievement involves certain directly comparable problems. We have difficulty, for instance, in feeling that our basic assumption concerning the general comparability of the acculturation of such handicapped subjects has been satisfied, particularly if devices developed for use with the non-handicapped have been used on them and the results stated in terms of a normal population. For a long time, devices standardized on a hearing population were administered to deaf children and youth and their performances characterized in terms of mental ages or intelligence quotients derived from hearing-normative data. That the deaf did significantly less well on these devices than the hearing was clearly evident. But did this fact indicate that the basic capacities of the deaf were as low as the test results suggested? Since at least most of the devices which were used sampled heavily in the verbal and conceptual areas, particularly regarding hearing subjects, one very properly can raise the question, "Was the acculturation of the deaf enough like that of the hearing (on whom the devices were standardized) to warrant the use of the same device on the two groups?" Since even most "mental" measuring devices measure achievement (from which capacity to achieve is inferred), had the deaf the same opportunities to achieve (acquire percepts and form concepts) as did the non-deaf standardizing population? In light of the discussion of the conceptualization processes of the deaf in Chapter 3, it is clearly apparent that the acculturation backgrounds of the two groups are not comparable.

This fact was early recognized and led to two lines of endeavor. Reasoning from the assumption that basic intelligence is likely to be "normally" distributed within a large population (such as the deaf) unless there are factors known to be operating to impair or distort it (as contrasted with affecting the *manifestation* of that intelligence), and that the average of that distribution should not be so far below the average of a comparable hearing population, ways were sought to get a "truer" picture of the basic mental capacities of the deaf. Since the devices used were predominantly verbal, it seemed reasonable to get at the basic learning capacity of the deaf in a non-verbal manner. This seems like a wonderful idea, and it would be if we could be certain that the kinds of non-verbal behavior sampled provided as good a predictive basis (of subsequent school learning) as did the verbal behavior samplings. However, most measures of non-verbal behavior developed on a hearing population do not provide as good a basis for predicting success in school learning as do measures of verbal behavior. In the case of the deaf, the use of hearing-standardized non-verbal tests was found to be more effective in indicating school learning than was the use of hearing-standardized verbal tests. Steps were taken next to improve upon this admittedly makeshift situation by developing non-verbal tests which could be used with the deaf and standardizing these materials on the deaf. A roughly parallel developmental history has existed with respect to the areas of the cerebral palsied and the blind. First, existing devices were employed, with little if any modification from their original form; certain parts of the devices were then omitted and/or substitutes made; then either whole new devices were made or planned, or administration procedures and norms were developed for the particular exceptionality.

## MEASUREMENT APPROACHES AND PROBLEMS

We have considered at some length certain assumptions basic to and difficulties inherent in attempts to examine the exceptional.

On the basis of these, the student should be able to determine for himself certain possible uses of specific devices and procedures.

The number of devices which have been well developed for the purpose of sampling different kinds of human behavior runs frustratingly into the hundreds. Other less well standardized and validated devices which have been used, many of which might add significantly to our understanding of human behavior if they were provided with scientifically acceptable bases, increase the total amazingly. To consider each of the best and most promising of these, with respect to particular types of exceptionality, would lead us into a mass of detail that would be interesting but, in large part, highly transitory. It will better serve our purpose here to consider only illustrative attempts at measurement of certain types of behavior in certain of the areas of exceptionality. Some of these attempts have been made, others are being initiated, and some need to be undertaken.

Psychologically, we strive continuously to think in terms of the "whole individual" reacting in varying situations. However, measurement in this molar sense has not been accomplished. What we have to do is, consciously, artificially, to deal, one at a time, with certain facets of the individual, and then to reconstitute the individual into a dynamically meaningful whole. For our purpose here, we shall concern ourselves with selected measurement approaches and problems in specific areas: limited aspects of physical condition, intellectual potential, socioemotional adjustment, educational achievement, and vocational aptitude.

As we consider these facets of different kinds of exceptional children and youth, we recognize that some evidences of some of these areas overlap to varying extents with certain evidences of others. A child needs a certain amount of intellectual capital and educational achievement in order to comprehend and react meaningfully to an inventory on social adjustment or to certain tests of vocational interest. Even if the items in such devices were read to him, he must be able to understand and remember what is read if his responses are to have even elementary validity. In spite of this, the areas can be regarded as partially and, if competent research has been done on the devices used, identifiably discrete. Bear in mind, too, that we shall refer to the exceptionalities as though they were single rather than multiple exceptionalities.

*The Physical Area*

During the early years of an individual's life, inferences concerning intellectual growth are based essentially upon evidences of physical growth and development. This is understandable because the nervous system must grow in order that muscles will function. When certain muscles are seen to function, this is taken as evidence that certain neural growth has occurred. When normal stimulation does not evoke a given motor response, it is inferred that neural growth has not occurred, due either to lack of time for such growth or to the presence of some pathological condition. If the nature of a variety of motor responses of an 18-month-old infant is comparable to the nature of those of only a nine-month-old baby, usually one is highly suspicious of "mental" retardation or of some contributing pathology, or of both. (One does not generalize wisely on a single sample of behavior!) As a result, the physical developmental picture serves as a major basis on which inferences are drawn concerning "mental" development. Particularly useful in ascertaining and interpreting this physical developmental picture of infants and young children is Gesell and Amatruda's *Developmental Diagnosis*, although, in using the information in this book, one must constantly bear in mind the fact that the normative statements are in terms of averages and that perfectly normal individuals can fall somewhat above and below the averages which are presented.[5]

In interpreting behavior samples of this sort, one must remember that the manifestations of some mild neuropathological conditions may not appear until later. Illustrative of this is the case of a child who, at the age of 18 months, was very thoroughly and apparently competently examined, both neurologically and psychologically, in a clinic of high repute. The official report of that clinic, undoubtedly justified at that time, contained not even a suspicion of any neurological involvement. When the writer saw the child, at the age of five, there were motor and sensory responses that suggested some neural involvement. Subsequent examination of the child by a competent medical authority, confirmed the suspicion of mild athetoid involvement with an accompanying moderate hearing loss.

Some evaluations of over-all motor coordination have been made, especially of the mentally retarded, by means of the Oseretsky test.[6] While the behavior samplings of this test are not particularly involved, the problem of its administration to older children have led Sloan[7] to simplify and modify it somewhat. His revision is in the process of being standardized, and he is obtaining data by means of it both on mental defectives and on a normal population.

The problem of characterizing the motor levels of children handicapped by neuromuscular disorders has been attacked by Johnson, Zuck, and Wingate.[8] Drawing upon Gesell's developmental data and preparing situations and devices which call for more complex behaviors, they have constructed an individual test by which they endeavor to ascribe motor ages to such handicapped children. Standardized originally on "normal" children, for which the original data unfortunately are not available, norms are established for functioning both with upper extremities and with lower extremities. The children can be examined both with and without braces, thus making possible a determination of the benefits of bracing and the effects of other corrective work.

Illustrative of a different basis for the study of the motor competencies of children, youth, and adults with neuromuscular involvements are the check lists prepared by Brown and others.[9] Her Daily Activity Record provides a means for checking 100 routine behaviors, including speech, dressing, undressing, eating, locomotion, rising and sitting down, and for recording progress in learning such physical activities. The Brown-Bogert Pre-Vocational Motor Skill Inventory[10] is intended for use with "any person of any age who has one or more extremities free for motor skills." One hundred activities are listed in this device, also, but they differ from the essentially self-care activities of the Daily Activity Record by including behaviors such as fixing a plug on an electric cord, extracting a nail, packing groceries in a carton, and putting a key in a padlock. While the time allowances for both these devices and the age placements of the items in the latter inventory still may require more rigid statistical validation, the instruments and their underlying rationale have much to commend them.

Intentionally ignoring the psychogenic aspects of speech impairment and dealing with it here essentially as a motor function, the problem of identifying the behaviors that constitute speech impairment is facilitated by the many check lists, sets of pictures, and other stimuli for evoking speech behavior which are described in the chapter on speech-handicapped children.[11]

While it is not within the proper domain of the psychologist to make diagnoses regarding the presence or absence of brain damage, he often can detect behavioral cues on the basis of which to invite consideration by the neurologist. Sometimes his suspicions are aroused by electroencephalographic tracings, by digit, letter, or figure reversals or rotations on intelligence and on some projective tests, or by certain bizarre or stereotyped perceptual behavior.[12] (Such hunches tend to be dangerous when they are expressed by the neophyte; they are not 100 per cent certain with experts!) One of the more scientific approaches to this problem has been made by Graham and Kendall who developed a Memory-for-Designs Test for this purpose.[13] This test consists of a series of geometric designs which are presented, one at a time, to the subject for five seconds and then withdrawn for the subject to reproduce from memory. Scoring is done on the basis of the amount of rotation, reversal, and/or mutilation, with corrections being provided for the mental level of the subject. No research has yet been done to ascertain whether this approach can validly be used with the deaf or the blind.

The measurement of auditory and visual efficiency will not be discussed here, since those procedures and problems are discussed in the chapters on the acoustically and the visually handicapped. Suffice it to point out here that certain problems in these areas parallel those in the area of measuring intelligence. In all three areas, for instance, there is first the problem of gross and reasonably effective screening, as a result of which children so screened out undergo more intensive and extensive individual examination by more highly trained persons. Audiometrics and vision screening procedures vary in validity just as group intelligence tests do. Further, just as a child of normal or above-average mental capacity may not do well on a group intelligence test because of emotionality or a number of other factors, just so, for instance, may a child "fail" in a group testing situation because of wax in his ears, a cold, or other causes.

Helpful to some extent in the total psychological assessment of exceptional children and youth are the evaluated measurements of their different gross structural features. Clinicians vary in the amount of attention they give to such aspects as body type, head girth, cephalic index, changes in chest size with inspiration and expiration, and stage of development of the wrist bones. Height and weight norms, interpreted in the light of the nature of the child's parental stock and health history, can be helpful in understanding and characterizing these aspects of the child. The most widely used norms continue to be those of Baldwin and Wood.[14] More recent developmental age normative data, compiled by Olson,[15] show no consistent or marked deviation from the earlier norms. They do, however, include additional data on permanent dentition and strength of grip, and extend the height-weight norms by sex down to the 30-month level. Recording and studying the physical developmental history of children, by teachers and parents in checking gross growth and by pediatricians in working correctively on growth problems, are facilitated by the Wetzel Grid technique.[16] Based upon the fact that children tend to have their own physical growth rates, successive plottings of height-weight status can reveal departures from the children's channels which, in turn, are taken to be indicative of some disturbance of growth patterns due to physical or emotional factors.

The physical behavior pattern of a child may be distorted not only by neuromuscular and structural anomalies and physiological dysfunctions but, also with at least equal prevalence, by excessively solicitous and inhibiting parental care. Unless one is clinically highly perceptive of traces of cues in such cases, the degree of physical involvement is likely to be regarded as considerably greater than it actually is. In such instances, the orthopedist, the neurologist, or the pediatrician can give the psychologist some valuable cues and, often, the psychologist can find behavior potentialities of much value to the medical specialists.

## *The Area of Intelligence*

The discussion thus far of assumptions and problems of measurement in general and the illustrations presented to show how easily the results of attempts at measurement of intelligence in particular can be contaminated both are of particular import with respect to the problem of ascertaining the learning capacity of all types of exceptional children.

*General problems.* As this discussion has progressed, the reader has probably become concerned about the seeming confusion of the measurement of "intelligence" as a total, all-inclusive something with the measurement of aptitude for school learning. It is hoped, also, that he has become concerned with allusions to "basic" learning capacity and illustrations of measured learning capacity. An understanding of these terms will contribute much to a comprehension of the significant measurement problems of the exceptional, to a sound basis for critical evaluation of the studies reported in this field, and to an adequate background in light of which to perceive the strengths and weaknesses of current and future attempts at measurement in this area.

Granting that it would be psychologically significant to be able to measure an over-all, all-inclusive intelligence either within a given area of exceptionality or among all areas, the bulk of the efforts have been, and probably will continue to be, directed toward the measurement of those aspects of intelligence which are most directly related to the learning of a certain kind of behavior that seems to play a major part both in just living with people and, more specifically, in learning in school situations. Since the provision of school learning situations constitutes the bulk of society's organized efforts in the interests of children, the measurement of the "intelligence," or "mental capacity," of these children becomes largely, if not essentially, the measurement of learning aptitude geared primarily to school situations but also to many non-school situations. In the discussion here, it is assumed that the major, if not the sole, learning activity is the acquisition of symbols.

Within this structure, then, the following definition of "intelligence" is employed: *Intelligence is the potential of the organism to acquire symbols, to retain those symbols, and to communicate meaningfully by means of those symbols.* This includes much more than vocabulary acquisition in the non-technical sense. Symbols may be spoken or written. They may be verbalized or non-verbalized. Symbols represent both objects and relationships between objects. The child, for instance, may rub his stomach as a non-verbalized symbol to communicate the idea that he is hungry, that he likes something, or that he has a stomach ache. He may say, "John is taller than Sue," using the symbol "taller" for the relationship between two persons. He may cringe, in a completely unverbalized manner, at a frown because this facial "symbol" in another portends a threatening relationship between another and himself. Having acquired these symbols he uses them in "intelligence" tests, in personality inventories, in vocational aptitude tests (either verbal or non-verbal), in educational achievement tests, or in projective devices. In the light of this, then, the measurement of this aspect of intelligence becomes the measurement of the child's susceptibility to acquire symbols.

The second terminological problem here arises with respect to our belief, or evidence, as to how close we come to the measurement of this susceptibility to symbol acquisition. When test performance is minimally contaminated by such conditions as emotional overlay, sensory impairment, motor involvement, or abnormal acculturation ("hothousing" or gross deprivation), we regard such test behavior as very closely indicative of basic capacity. To the extent that test performance is clouded by any of these conditions, we get results that do not accurately reflect that *basic* capacity. The term "basic capacity," or "basic intelligence," is used here to denote more nearly the biologically inherent learning potential of an organism. We continually hope that the behavior which reflects it is as little culturally contaminated as possible, but have the constantly lingering suspicion that it is at least a little so distorted.

The likelihood of test performances reflecting the basic capacities of children varies with the population of which those children are a part. If they were a group randomly selected out of a large heterogeneous public school population, basic capacities would be likely to be pretty accurately reflected in significantly more than half of those in such a group. If the children were among a random selection of those brought into a psychological clinic for examination, the basic capacities would be reasonably clearly reflected in only a small minority of them. Again, and this is most important for us here, if the children were all exceptional, it would be highly unlikely that basic capacities would be reasonably clearly reflected in more than a very small percentage of the group. For reasons that have been suggested in this chapter and that have been presented in the other chapters of this book, the test performances of a very large percentage of exceptional children are clouded by these conditions of emotional overlay, sensory impairment, motor involvement, and abnormal acculturation. Whereas such likely contaminations are recognized in the area of tested educational achievement and are suspected in the areas of emotionality and vocational aptitudes, they are particularly significant psychologically in the area of